Virginia Board of Education Agenda Item

Agenda Item: B **Date:** June 27, 2013

Title	Final Review of Proposals to Establish the following Governor's STEM Academies: 1) Fairfax County Public Schools Governor's STEM Academy at George C. Marshall High School; 2) Harrisonburg City Public Schools Governor's STEM Academy at Harrisonburg High School; and 3) Montgomery County Public Schools Governor's STEM Academy at Christiansburg High School		
Presenter	Ms. Lolita B. Hall, Director, Office of Career and Technical Education Services Jeff McFarland, Academy Coordinator, Marshall High School, Fairfax County Public Schools J. Patrick Lintner, Executive Director for Instruction, Harrisonburg City Public School Rick Weaver, Career and Technical Education Supervisor, Montgomery County High School		
E-mail	lb.hall@doe.virginia.gov	**Phone**	(804) 225-2051

Purpose of Presentation:
Other initiative or requirement. Specify below:
Final review of proposals to establish the following Governor's STEM Academies:
1) Fairfax County Public Schools Governor's STEM Academy at George C. Marshall High School
2) Harrisonburg City Public Schools Governor's STEM Academy at Harrisonburg High School; and
3) Montgomery County Public Schools Governor's STEM Academy at Christiansburg High School

Previous Review or Action:
Previous review and action. Specify date and action taken below:
Date: May 23, 2013
Action: First Review

Action Requested:
Final Review: Action requested at this meeting

Alignment with Board of Education Goals: Please indicate (X) all that apply:

X	Goal 1: Accountability for Student Learning
	Goal 2: Rigorous Standards to Promote College and Career Readiness
X	Goal 3: Expanded Opportunities to Learn
	Goal 4: Nurturing Young Learners
	Goal 5: Highly Qualified and Effective Educators
	Goal 6: Sound Policies for Student Success
	Goal 7: Safe and Secure Schools
	Other Priority or Initiative. Specify:

Background Information and Statutory Authority:
Goal 1: The Academy must meet rigorous criteria established by the Board of Education. Students progress in academic and technical knowledge and skills; and their employability knowledge and skills are monitored and measured annually to ensure successful transition to college and career.

Goal 3: The Governor's STEM Academy is designed to expand opportunities for the general student population to acquire STEM literacy and other critical skills, knowledge, and credentials that will prepare them for high-demand, high-wage and high-skill careers.

Partnerships establishing academies must include at least one public school division, business and industry, and postsecondary education. On November 29, 2007, the Board of Education approved the criteria to establish a Governor's STEM Academy. Subsequently, on March 19, 2008, the Board approved the standards for the Governor's Career and Technical Education Exemplary Standards Awards Program, which all Career and Technical Academies must implement.

The State Council of Higher Education for Virginia (SCHEV) has reviewed the proposals and recommends approval by the Board of Education. Staff members of the Virginia Department of Education (VDOE) have reviewed the proposals in the context of the established criteria. An executive summary of the proposals is in Attachment A.

Currently, there are 19 Governor's STEM Academies in Virginia. They are located in Arlington County, Carroll County, Chesapeake City, Chesterfield County, Fairfax County, Halifax County, Hampton City, Loudoun County, Lynchburg City, New Kent County, Newport News City, Pulaski County, Richmond City, Richmond County, Roanoke County, Russell County, Stafford County, Suffolk City, and Virginia Beach City.

Summary of Important Issues:
1) Proposal to Establish the Fairfax County Public Schools Governor's STEM Academy at George C. Marshall High School

Marshall High School Governor's STEM Academy in collaboration with its partners: Fairfax County Public Schools, Systemic Solutions, George Mason University, Virginia Tech, Positek.net LLC, Tysons Regional Chamber of Commerce, Junior Achievement of Greater Washington, Marymount University, TerraWi, Cisco Systems, and Watnee LLC, will provide students the foundational skills needed to pursue career pathways within information technology and engineering. The Academy is centrally located within Northern Virginia's Tysons Corner and twelve miles west of the District of Columbia. Because of its central location, partnerships with local businesses, post secondary articulation and dual enrollment agreements, the Governor's STEM Academy will be uniquely poised to meet the mission: increase student access to STEM specific instructional programs and pathways in career and technical education; and develop a highly-skilled, diverse STEM high school graduate prepared for postsecondary education or the global workforce. The Academy will have the capacity to enroll 400 students, grades 9-12. During the 2013-14 school year 150 students will be admitted.

The Academy will focus on the following two career pathways within two career clusters:

CAREER CLUSTER	CAREER PATHWAY
Information Technology	Network Systems
Science, Technology, Engineering, and Mathematics (STEM)	Engineering and Technology

Students enrolled in the Network Systems pathway will learn about the design, development and management of different types of software programs and hardware. This field requires a rigorous foundation in mathematics and science as well as high technical skills. The study of cyber security is an emerging field with many career possibilities. Digital defense is not only for those working in technology, government, or law enforcement jobs. Cybersecurity affects any business or organization that uses internal computer systems or connects to the Internet to do business, including those in: homeland security, public and private cyber monitoring, health care information protection, energy industry systems protection, banking, education, online retail, product development, and technology products and services. The coursework will focus on systems, networks, and technology. Students will gain specific cybersecurity skills in the ethics and legal issues related to data gathering and protection; engage in real-world plans and processes for common security scenarios, techniques and technologies that protect data and systems; and will learn about ways to detect and defend against cyber attacks.

The Information Technology (IT) lab will include 32 data drops and wireless connectivity for computer workstations, mobile devices, and laser printers. It will be fully equipped for interactive teleconferencing. Students will study collegiate-level software applications such as Microsoft's Network Administration and Security, Cisco CCNA and Healthcare, Oracle, and A+ computer systems technology to optimize interaction, critical thinking, and problem-solving capabilities in the IT field. The lab has two primary zones that allow independent study and group sessions to occur simultaneously. The *Cyber Center* encourages hands-on applications in a virtual lab environment to increase students' ability to reduce vulnerabilities in today's computer network systems. In the *Networking Center,* students will have the appropriate equipment to develop flexible network configurations.

As technology advances across the globe, it is important to have individuals who understand and can support the new technological demands. Network Systems and Data Communications Analysts are predicted to see a 53 percent increase in employment opportunities.

Students enrolled in the Engineering and Technology pathway will engage in rigorous problem-solving experiences. They will learn how to use their knowledge of science, mathematics, logic, and economics to find suitable solutions to real-world problems. The STEM lab will be equipped for 21st century learning. The lab will offer collegiate-level applications and sophisticated technologies to optimize research, interaction, and critical thinking among the students. The lab will have two primary zones that allow independent study and group sessions to occur simultaneously. The *Think Tank* will encourage students to think out loud and it will be equipped to support global conferencing. In the *Lab Zone* students will have appropriate equipment for the flexibility to conduct many experiments. An overhead gridding system and large tabletops will allow for optimal connections to equipment, while speakers and microphones transmit throughout the lab. Additional equipment will include a wind tunnel, Computer Numerical Control (CNC) machines, 3D prototype printer, large format printer, plasma cutter, and computer workstations with computer-aided design (CAD) software.

Over the next decade, jobs aligned with advancing technology are predicted to boom as new career opportunities open. Individuals with college degrees and experience working with high-tech laboratory equipment have the most potential for success within this industry.

2) <u>Proposal to Establish the Harrisonburg City Public Schools Governor's STEM Academy at Harrisonburg High School</u>

As the world and Virginia are changing rapidly, it is predicted that areas such as health, energy, environment, and natural resources will have serious personal, social, and global issues for current and future populations to solve. Outside the typically educational setting, science, technology, engineering, and mathematics (STEM) are integrated naturally to study and solve problems. The proposed Harrisonburg High School Governor's STEM Academy emphasizes an integrative (I-STEM) learning approach to prepare students for meeting the challenges of today and the near future. The I-STEM model consists of specific units that are collaboratively developed based on the Science Standards of Learning and integrated with those from language arts, mathematics, social science, technology as well as engineering content.

Harrisonburg City Public Schools (HCPS) provides all students in all five elementary schools and both middle schools with daily science and mathematics education including units designed as integrative lessons in I-STEM. By creating a Governor's STEM Academy, HCPS expects to raise student aspirations and attract more students to postsecondary education in preparation for the career pathways of Engineering and Technology, and Science and Mathematics. The Academy will have the capacity to enroll 296 students, grades 9-12. During the 2013-14 school year 98 students will be admitted.

The Academy will focus on the following two career pathways within the STEM career clusters:

CAREER CLUSTER	CAREER PATHWAY
Science, Technology, Engineering, and Mathematics (STEM)	Engineering and Technology
	Science and Mathematics

In the seventh and eighth grades, students have an opportunity to participate in the Middle School STEM Exploration Academy, where they integrate career and technical education courses with science courses and explore different career options based on their interests. Whether students choose to apply to and enter the Harrisonburg High School Governor's STEM Academy in either of the two pathways, they will have access to Advanced Placement and dual enrollment science and mathematics courses as well as the opportunity to receive postsecondary certificates including the Governor's certificate of recognition for the Early College Scholars Program. Students entering engineering and technology pathways will be completers in Engineering Studies. Coursework will be enhanced through integration with physics, algebra II, Earth Science, chemistry, and English. Students in both pathways will take science and mathematics courses their junior and senior years, including several Advanced Placement and dual enrollment courses with the opportunity for mentorships or internships with Academy's higher education and/or business partners that include: James Madison University, Blue Ridge Community College, Blackwell Engineering, Rockingham Group, Shenandoah Valley Electric Cooperative, Serco, Kawneer, Shenandoah Valley Technology Counsel, and Stanford Research Institute.

Students in the Academy will be immersed in problem and project-based learning in grades nine through twelve. Students in both pathways are required to participate in extracurricular activities including, but are not limited to the Academic Competition Team, Bib Blue 'Botics (HHS FIRST Robotics team), Environthon, and attendance at local science and mathematics lectures.

According to the Virginia Workforce Connection, as of September 10, 2012, there were 14,200 unfilled professional, scientific, and technical services jobs in Virginia. Graduates seeking well-paying careers need not search fare if their skill sets are a match for the opportunities. In

Harrisonburg and neighboring Rockingham County, there are many science and technology-oriented businesses and industries looking to hire talented, well-educated workers. The positions available include those requiring some college and experience as well as those requiring engineering associates degrees, Masters of Engineering, and Doctorates.

Students graduating from the Harrisonburg High School Governor's STEM Academy will have a strong academic preparation for entering a four-year college majoring in a wide variety of STEM fields. They will be well-prepared to continue education in any of Virginia's high-demand fields of economic growth as identified by the Virginia Economic Development Partnership, including: food processing, clean energy, biotechnology research and development, federal security agencies and providers, information technology, aerospace, and global logistics.

3) Proposal to Establish the Montgomery County Public Schools Governor's STEM Academy at Christiansburg High School

The proposed Montgomery County Public Schools Governor's STEM Academy will be located at Christiansburg High School; however, some of the Academy courses will be offered at the division's other three high schools as well. Students who attend the smaller high schools will be eligible to continue a chosen program of study at Christiansburg High School with transportation provided. The Academy will have the capacity to to enroll 150 students, grades 9-12. During the 2013-14 school year 65 students will be admitted.

Virginia Employment Commission data indicates that the manufacturing industry employs the second largest number of all industries and ranks fifth in the current number of advertised jog openings in the New River Community College Region (see Appendix B). Montgomery County is the largest county served by the New River Community College. Jobs related to STEM, manufacturing, and information technology career clusters are in the top ten occupation groups represented by jobs advertised in the same region. The Montgomery County Governor's STEM Academy in collaboration with its partners: Virginia Tech, Montgomery County Department of Economic Development, New River Community College, Jeld-Wen Interior Doors, Automation Creations, OWPR Architects and Engineers, Moog Components Group, and NRV Competitiveness Center, will offer a program of study to expand students knowledge and skills in STEM literacy as it relates to advanced manufacturing. Students will gain the knowledge and skills needed to succeed in the technologically-rich workplace by learning how to work in teams, communicate effectively, and apply the principles and skill sets in STEM fields. A FIRST Robotics design and build team project will be the co-curricular component for all six pathways in the following chart. This project will be scheduled as an after school course to allow students from all pathways to participate.

The Academy will focus on the following six career pathways within three career clusters will prepare students for programs leading to bachelor's degrees, tow-year associate's degrees, Virginia Community College System diplomas and certificates, apprenticeships, and employment.

CAREER CLUSTER	CAREER PATHWAY
Science, Technology, Engineering, and Mathematics (STEM)	Engineering and Technology
Manufacturing	Manufacturing Production Process Development
	Production

Information Technology	Programming and Software Development
	Information Support and Services
	Network Systems

The FIRST Robotics program is built around a series of year-long elective courses taught by teachers from career and technical education (CTE), mathematics, and science in an after-school setting. This program is supported by Virginia Tech mechanical engineering students and professors. High school students achieve a level of familiarity and literacy in engineering and other STEM content while university students apply their engineering skills as mentors.

During the junior or senior year, Academy students will have the opportunity to apply their knowledge of STEM, as well as 21st century skills, in a real-world work experience by participating in job shadowing, internships, and/or cooperative experiences related to their chosen career path.

The pathways will have clear postsecondary objectives outlined through articulation with New River Community College, Radford University, and Virginia Tech. Every pathway in the Academy will culminate in a program of study at one of these three institutions. Whenever possible, both academic and CTE courses will be offered as dual enrolled courses through New River Community College or through the network of Project Lead the Way colleges.

In summary, the Governor's STEM Academy will provide awareness and opportunity for students and will increase the number of well-trained workers in areas that have been designated as high demand and high tech in business and industry. Offering parallel pathways with multiple post-graduation objectives will help students choose the best path before high school graduation.

Impact on Fiscal and Human Resources:
Funding for implementation must be provided at the local level.

Timetable for Further Review/Action:
The proposed beginning date is school year 2013-14 for the following:
1) Proposal to Establish the Fairfax County Public Schools Governor's STEM Academy at George C. Marshall High School
2) Proposal to Establish the Harrisonburg City Public Schools Governor's STEM Academy at Harrisonburg High School
3) Proposal to Establish the Montgomery County Public Schools Governor's STEM Academy at Christiansburg High School

Superintendent's Recommendation:
The Superintendent of Public Instruction recommends that the Board of Education approve the proposals to establish the following Governor's STEM Academies:
1) Fairfax County Public Schools Governor's STEM Academy at George C. Marshall High School
2) Harrisonburg City Public Schools Governor's STEM Academy at Harrisonburg High School
3) Montgomery County Public Schools Governor's STEM Academy at Christiansburg High School

Fairfax County Public Schools
Marshall High School Governor's STEM Academy

Executive Summary
May 6, 2013

Partnership Members:	Fairfax County Public Schools, Systemic Solutions, George Mason University, Virginia Tech, Positek.net LLC, Tysons Regional Chamber of Commerce, Junior Achievement of Greater Washington, Marymount University, Terra Wi, Cisco Systems, Watnee LLC.
Lead Entity and Fiscal Agent:	Fairfax County Public Schools
Contact Person:	Jeff McFarland Academy Coordinator Marshall High School 7731 Leesburg Pike Falls Church, VA 22043 703 714-5400 jeff.mcfarland@fcps.edu
Academy Location:	Marshall High School
Number Students:	The Governor's STEM Academy will have the capacity to enroll 400 students, grades 9 – 12. During the initial school year (2013–2014) 150 students will be admitted.
Career Pathways:	Science and Mathematics Engineering and Technology
Academy Goals and Performance Measures:	The goal of the Fairfax County Public Schools Governor's STEM Academy is to promote student achievement and interest in STEM career fields to prepare students for global competitiveness in high-skill, high-wage, and high-demand STEM careers. The following program objectives and performance measures have been established by the Planning/Advisory Committee: • Ensure all Governor's STEM Academy students have the opportunity to learn in a project-based learning environment and acquire critical-thinking and problem-solving skills required for today's global economy. • Increase the number of George C. Marshall Governor's STEM Academy students who achieve a B (80 percent) or better in an advanced mathematics class by two percent over the next four years. • Increase the number of George C. Marshall Governor's STEM Academy students meeting the requirements of the Advanced Studies Diploma by

five percent over the next four years.

- Reduce George C. Marshall High School's dropout rate by .5 percent over the next four years.
- Increase George C. Marshall High School's graduation rate by .5 percent over the next four years.
- Increase the enrollment and retention in postsecondary education by providing students the opportunity to earn dual-enrollment credit. A critical component in the hiring of new staff members will be their ability to be credentialed as a high school dual-enrollment instructor. To that end, by the 2015-16 school year, we will strive to provide students within the Academy the opportunity to earn nine dual enrollment credits by the time they graduate high school. Post-graduation, STEM Academy graduates will receive follow-up Career and Technical Education surveys to determine successful retention in a postsecondary institute or the career field of focus.
- Increase the number of STEM Academy graduates employed in high-wage, high-demand careers by 10 percent (as identified by the Virginia Employment Commission) over the next seven years after high school graduation.
- Reduce the proportion of students requiring remediation in college by five percent by monitoring student achievement (grades) and providing intervention services as required. Success will be measured by the number of students who meet the basic college entrance criteria as determined by the Virginia Community College System. Academic assistance will be provided by Virginia licensed career and transition teachers.
- Increase the number of industry certifications earned by STEM Academy students by five percent each year.
- Ensure all qualified and eligible students participate in a valuable internship, job shadowing or work-based learning experience with local business and industry partners.
- Increase the number of postsecondary credits students earn through dual-enrollment opportunities by five percent over the next four years.
- Increase the number of students who pass the Workplace Readiness Skills by 15 percent over the next three years.
- 75 percent of graduating seniors will create an electronic career portfolio over the next four years.
- Increase the number of students competing in leadership and skill development competitions by 10 percent over the next two years.
- Increase the number of staff development opportunities for career and technical education teachers to actively participate in over the next four years by 25 percent.
- 95 percent of STEM Academy students will complete the Workplace Readiness Skills and CTE course competencies.

Highlights of the Program:

As a result of participating in the Governor's STEM Academy in the pathways of Science and Mathematics, and Engineering and Technology, students will:

- Gain a deeper understanding of the skills and knowledge incorporated in their fields of study;
- Benefit from specialized, project-based courses which develop critical-thinking, problem-solving, and decision-making skills, preparing them for the 21st century world;
- Acquire greater communication skills;
- Develop workplace readiness skills;
- Receive opportunities to earn industry certifications preparing them to be more competitive in the work force and when applying to advanced training schools or postsecondary institutions;
- Obtain meaningful, real-life, hands-on experiences in their career pathway; and
- Profit from opportunities for internships, mentorships, job shadowing, and cooperative education, which provide students with advantages when entering postsecondary education and/or the workplace.

Attachment B

The State Council of Higher Education for Virginia (SCHEV)

Review of the Marshall High School Governor's STEM Academy – Fairfax County Public Schools

The State Council of Higher Education for Virginia

Review of Governor's STEM Academy Proposal

Name of Lead Entity on Proposal: *Fairfax County Public Schools*

Date of Review: June 5, 2013

The State Council of Higher Education for Virginia recommends approval of: *Governor's STEM Academy at the George C. Marshall High School*

Peter Blake
Director

6/7/13
Date

Attachment C

Virginia Department of Education
Governor's STEM Academy
Proposal Review Checklist

Title of Proposal: Marshall High School Governor's STEM Academy

Lead Entity for Proposal: Fairfax County Public Schools

Date of Review: May 7, 2013

Virginia Department of Education
Governor's STEM Academy
Proposal Review Checklist

I. Partnership Capacity

Partnerships desiring to implement a Governor's STEM Academy shall provide the Department of Education with evidence of the following:

Criteria	Documentation			Comments
	Full	Partial	None	
A. An active, ongoing planning committee, including a list of members and signed certifications from each that they are willing and able to serve in that capacity. At a minimum, members must represent K-12 education (superintendent or designee), higher education, and business and industry. All partners must be represented on the committee.	X			
B. An advisory committee, including a list of members and signed certifications from each that they are willing and able to serve in that capacity.	X			
C. A written memorandum of agreement among school divisions, local businesses, postsecondary institutions, and any other partners that outlines ways in which community resources will contribute to the Governor's STEM Academy to broaden the scope of students' educational experiences.	X			

Criteria	Documentation			Comments
	Full	Partial	None	
D. A statement of assurances that the Governor's STEM Academy Planning Committee has reviewed provisions of *Administrative Procedures Guide for the Establishment of Governor's STEM Academies* and agrees to follow the guidelines set forth in the document (see appendix).	X			
E. A statement of assurances that, if applicable, an ongoing Governing Board will be established to reflect current Board of Education regulations relative to jointly operated schools and programs (see appendix).	X			
Comments:				

II. Need/Rationale for the Academy

Partnerships desiring to implement a Governor's STEM Academy shall provide the Department of Education with evidence of the following:

Criteria	Documentation			Comments
	Full	Partial	None	
A. Demonstration of the need/rationale for the Academy. This statement should be concise and state the major reasons to have a Governor's STEM Academy, including need at the state, local and/or regional levels.	X			
B. A description of the enhanced or additional offerings in science, technology, engineering, and/or mathematics (STEM) that will meet the need described above.	X			
C. A fiscal agent that is a public entity, including a certification that the entity is willing and able to serve in that capacity.	X			

Criteria	Documentation			Comments
	Full	Partial	None	
Comments:				

III. Program Description

Each Governor's STEM Academy planning committee shall develop cooperatively with local school divisions, business, community, and higher education partners and have available for review and dissemination, a program description that includes:

A. A statement of program goals addressing the following criteria:

Criteria	Documentation			Comments
	Full	Partial	None	
1. Rigorous academic content in career and technical instruction;	X			
2. An emphasis on STEM career pathways;	X			
3. Individualized high school plans to ensure course selections that are aligned with students' transition and career goals after high school;	X			
4. Evidence that graduates will complete a college and work readiness curriculum, minimally at the level specified for Commonwealth Scholars Course of Study (State Scholars Core) with the possibility of pre-approved substitution of equivalent courses where there may be more relevant course selections for a particular career pathway;	X			
5. Incorporation of Virginia's Workplace Readiness Skills.	X			
Comments:				

B. A statement of program objectives and performance measures to:

Criteria	Documentation			Comments
	Full	Partial	None	
1. Improve academic achievement of Academy students;	X			
2. Increase completion of dual enrollment courses;	X			
3. Provide workplace readiness experiences for students through strong partnerships with businesses;	X			
4. Increase high school graduation rates;	X			
5. Reduce dropout rates;	X			
6. Increase enrollment and retention in postsecondary education;	X			
7. Increase the proportion of students completing a college and workplace ready curriculum in high school;	X			
8. Reduce the proportion of students requiring remediation in college;	X			
9. Increase the number of industry certifications awarded to high school students; and	X			
10. Increase the number of graduates employed in high-wage, high-demand and high-skill careers.	X			
Comments:				

C. A brief description of the proposed program, including:

Criteria	Documentation			Comments
	Full	Partial	None	
1. Site location;	X			
2. Number of students to be served;	X			
3. Grade levels;	X			
4. General curriculum design;	X			
5. List of courses to be delivered;	X			.
6. Description of how/where the courses will be delivered. Courses may be delivered on a high school, technical center or community college campus, online, or in other innovative ways; and	X			
7. Designation of full-day or part-day, academic-year program.	X			
Comments:				

D. Evidence of participation in the Governor's Exemplary Standards Award Program for Career and Technical Education

	Documentation			Comments
	Full	Partial	None	
	X			.
Comments:				

E. Program and course descriptions

E.1. At least two well-articulated career pathways must be included that meet the following criteria:

Criteria	Documentation			Comments
	Full	Partial	None	
Pathway #1				
a. Must include opportunities to earn industry credentials, postsecondary certificates, diplomas or associate degrees while in high school and pursue additional industry credentials and academic degrees at the associate, bachelor's and graduate levels. These pathways may be in the same or different career clusters.	X			
b. Must be in a field identified by a statewide authority or organization, such as the Virginia Economic Development Partnership or the Virginia Research and Technology Advisory Commission, as a strategic growth area for Virginia. Examples include biosciences, information technology, automotive technology and motor sports, as well as modeling and simulation and nanotechnology **or**	X			
c. Must address regional and local work force demand in a high-wage, high-skill field as identified by employers and work force officials.	X			
d. At least one pathway must be in a STEM-related field. This career pathway should drive the innovative capacity of the region and/or state.	X			

Criteria	Documentation			Comments
	Full	Partial	None	
Comments:				

Criteria	Documentation			Comments
	Full	Partial	None	
Pathway #2				
a. Each career pathway must include opportunities to earn industry credentials, postsecondary certificates, diplomas or associate degrees while in high school and pursue additional industry credentials and academic degrees at the associate, bachelor's and graduate levels. These pathways may be in the same or different career clusters.	X			
b. Must be in a field identified by a statewide authority or organization, such as the Virginia Economic Development Partnership or the Virginia Research and Technology Advisory Commission, as a strategic growth area for Virginia. Examples include biosciences, information technology, automotive technology and motor sports, as well as modeling and simulation and nanotechnology, or	X			
c. Must address regional and local work force demand in a high-wage, high-skill field as identified by employers and work force officials.	X			
d. Of the two pathways described, at least one must be in a STEM-related field. This career pathway should drive the	X			

Criteria	Documentation			Comments
	Full	Partial	None	
innovative capacity of the region and/or the state.				
e. Additional career pathways may address one of the areas described above, or an area identified by the partnership as an area of interest, growth, or expansion for students in the service area of the Academy.	X			
Comments:				

E.2 List of all requirements for successful program completion.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

E.3 Academy graduates must achieve one or more of the following benchmarks:

Criteria	Documentation			Comments
	Full	Partial	None	
a. Earn one or more industry certifications or state occupational licenses, and/or demonstrate competencies on an assessment instrument recognized by postsecondary institutions such as CLEP examinations, collaboratively designed or mutually approved end-of-course tests, college placement tests, or student portfolios reviewed by a team of college and high school faculty; **or**	X			

Criteria	Documentation			Comments
	Full	Partial	None	
b. Earn at least 9 transferable college credits as defined in the Early College Scholars program (includes dual enrollment, AP and other options); **or**	X			
c. Earn an Associate Degree.				
Comments:				

E.4 Significant work-based experience must be included representing additional instruction or training beyond the classroom such as:

Criteria	Documentation			Comments
	Full	Partial	None	
a. Cooperative Education; or				
b. Internships; or	X			
c. Job Shadowing; or	X			
d. Mentorships; or	X			
e. Project-based learning; or	X			
f. Service learning; or	X			
g. A combination of the above.				
Comments:				

F. Length of program and daily schedule: Governor's STEM Academies are defined by program content, not by the location or delivery system of courses. Evidence of the following must be submitted:

Criteria	Documentation			Comments
	Full	Partial	None	
Designation of full-day or part-day, academic-year program.	X			
Comments:				

G. Assurance from the fiscal agent that operating funds and facilities are available to support the Governor's STEM Academy and are adequate to meet the needs of the program

	Documentation			Comments
	Full	Partial	None	
	X			
Comments: .				

H. Materials and equipment to be provided to accomplish program goals and objectives.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments: .				

I. Evidence of an internal evaluation process to effect program improvement, including:

Criteria	Documentation			Comments
	Full	Partial	None	
1. A review of the Academy's policies, procedures, and outcomes;	X			
2. Consideration of feedback from students, staff, parents, the	X			

Criteria	Documentation			Comments
	Full	Partial	None	
community, and partnership members; and				
3. Annual collection and reporting of data to the Department of Education related to student achievement, goal achievement, and other indicators.	X			
Comments:				

IV. Administrative Procedures

Each Governor's STEM Academy must develop and maintain procedures developed cooperatively with participating partners. There should be evidence of procedures in the four areas that follow.

A. Partnerships - The role of business and industry, public school divisions, and postsecondary institutions in the partnership. The role of workforce and economic development entities should also be included if they are among the partners.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

B. Student recruitment, selection criteria, and admissions.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

C. Code of student conduct and attendance.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

D. Transportation provided by the school division or consortium that is in compliance with all applicable federal and state regulations.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

E. Staff recruitment, selection, and assignment - The Governor's STEM Academy shall hire staff members who meet the Virginia teacher licensure requirements and/or postsecondary faculty qualifications. Where applicable, they must have industry-specific education with training and experience, including industry certification.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

F. Staff development - The program will provide appropriate staff training in addition to staff planning time.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

G. Staff evaluation – Staff will be evaluated according to the human resources policies of the agency or institution employing Academy personnel.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

H. Parent, student and community involvement

Criteria	Documentation			Comments
	Full	Partial	None	
1. Preparation for entering the Academies should begin by eighth grade.	X			
2. Students, parents, teachers, and counselors should work collaboratively to: a. Complete career interest inventories;	X			
b. Prepare academic and career plans outlining an intended course of study in high school;	X			
c. Review multiple postsecondary pathways and the steps required to pursue them;	X			
d. Participate in career assessments to identify areas students should strengthen to qualify for their selected pathways; and	X			
e. Discuss available diplomas, seals, and other recognitions including admission to specialized programs such as Governor's Academies.	X			

I. Documentation of insurance, budget, and other fiscal information

	Documentation			Comments
	Full	**Partial**	**None**	
Insurance	X			
Budget (from appendix)	X			
Budget Narrative	X			
Other				
Comments:				

Attachment D

A Governor's STEM Academy

At

George C. Marshall High School

Advancing STEM Education for Virginia's Economic Future

Fairfax County Public Schools
May 23, 2013

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The George C. Marshall High School Governor's STEM Academy Proposal

I. RATIONALE

A. National Need for a Skilled STEM Work force

In 2006, the U.S. National Academies issued a warning about the decline of STEM (science, technology, engineering, and mathematics) education in America and recommended multiple actions to ensure STEM education would thrive and be sustainable in the future. Some of the top recommendations included increasing the number of students preparing to enter college in a STEM major and increasing the number of students graduating with a STEM degree.

In addition to these recommendations, there have also been multiple reports by the U.S. Department of Labor, the U.S. Bureau of Statistics, and the U.S. Department of Commerce supporting the need for a highly skilled STEM work force and the need to bolster our current STEM education efforts to ensure the U.S. remains competitive in today's global economy. It is absolutely critical to support STEM education and ensure we do everything possible to maintain and encourage our youth to pursue further education in the fields of science, technology engineering, and mathematics where the highest paying jobs will exist over the next ten to fifteen years.

The White House has also addressed the immediate demand for highly skilled cyber-security experts to protect our financial institutions, intellectual property, and critical infrastructure. Today, it is estimated that over 400 million people worldwide have been affected by a cyber crime and that cyber crimes have cost over 400 billion dollars. In January 2009, the Cyberspace Policy Review out of The White House reported "The United States needs a technologically advanced work force to remain competitive in the 21st century economy" to decease the incidence of cyber crimes. The review also concluded the United States must make mathematics and science a priority in schools and should initiate a K-12 education program for cyber security, which should include digital safety, ethics, and critical thinking.

B. Virginia's Call to Action

As technology has become a key component in all occupational fields, students now need a solid foundation in STEM to be a productive member of the work force. Solid knowledge in STEM fields, along with analytical, problem solving, and critical-thinking skills is increasingly essential for the economic prosperity of the Commonwealth and its residents.

The Department of Labor estimates by 2014 employers will hire 2.5million new STEM workers nationally. As the demand of workers in the STEM economy grows, Virginia's educational system will be required to adjust its capacity to meet the needs of this growing work force need.

Virginia Senator Tim Kaine in October 2012 stated that "Science, Technology, Engineering, and Math (STEM) jobs are projected to grow by 17 percent from 2008 to 2018. It's clear we need to make STEM education a priority."

The Governor's Commission on Economic Development and Job Creation states that Virginia is consistently ranked as the most business friendly state in America. However, subgroups identified through research, personal experience and discussion with agency representatives and other stakeholders identified several general areas where Virginia's economic development systems, programs and infrastructure are insufficient to meet current and future needs of business. Some of these common deficiencies include:

- For the next Apple, Google or Facebook to start in Virginia instead of California or Massachusetts, Virginia needs to establish a structure to increase collaboration and coordination between industry, higher education and emerging technology entrepreneurs.
- As Virginia places a greater emphasis on Science, Technology, Engineering and Mathematics (STEM) education and STEM-related careers, we will need to have qualified educators to teach science, technology, engineering and mathematical-related classes. The Commission supports the increased efforts by colleges, universities and local school divisions to train more teachers to enter Career and Technical Education (CTE) and STEM programs

C. Northern Virginia & Tysons Corner STEM Pipelines

The George C. Marshall High School Governor's STEM Academy will be centrally located within Northern Virginia's Tysons Corner and twelve miles west of the District of Columbia. Tysons Corner is Virginia's largest office market and one of the leading business centers in the nation with nearly 26.6 million square feet of office space. Tysons Corner is the "downtown" of Fairfax County and is home to a wide range of employers, many of them corporate or regional headquarters operations. Some of the largest include: AT&T, Boeing, Booz Allen Hamilton, Capital One, Deloitte, Ernst & Young, Freddie Mac, Gannett (USA Today), Hilton Worldwide, IBM, MicroStrategy, The MITRE Corp., National Automobile Dealers Association, Northrop Grumman, PriceWaterhouseCoopers, SAIC and Sun Microsystems. Gerald L. Gordon, Ph.D., president and CEO of the Fairfax County Economic Development Authority (FCEDA), appeared on the Fox Business Network in April 2013 to talk about the FCEDA's marketing outreach in California. The FCEDA has an office in the Los Angeles area to work with California companies that are interested in expanding or relocating operations to the Washington area. More than 20 California-based companies also have operations in Fairfax County. Companies that have relocated headquarters operations from California to Fairfax County since 2008 include global hotel chain Hilton Worldwide, Northrop Grumman, research and technology firm SAIC and IT services company CSC.

Our dual enrollment partner from higher education, Northern Virginia Community College (NOVA), has recognized the need for educational opportunities to prepare students for STEM careers. As NOVA President Robert G. Templin Jr. states, "At NOVA, we are excited to be able to enlarge the pipeline of students preparing to enter college and graduate with STEM degrees." To this end, NOVA has developed SySTEMic Solutions, a collaborative arrangement among school divisions, higher education institutions, and employers to develop a sustainable work force that by the year 2015 will have more than 3,000 students preparing for STEM careers.

The Northern Virginia Technology Council (NVTC) and the Center for Innovative Technology (CIT) are developing a cyber security accelerator to educate and identify best practices on all aspects in the field of cyber security. Pete Jobse, the president and CEO of CIT, recently stated, "The cyber-security marketplace is projected to grow to $120 billion by 2017." Understanding this critical increase, CIT is working with industry, government, and university leaders to make sure that companies and the Commonwealth are positioned to capture a large piece of that business.

D. Vision for The George C. Marshall High School Governor's STEM Academy

The Academy will become a leader in secondary STEM education, preparing students to meet the critical needs of local industries in the 21st century global economy as well as advancing students into postsecondary education. Through the rigorous courses, innovative concepts, state-of-the-art technology and collaboration with NOVA, the STEM Academy will position itself as a leader in providing advanced courses in science, mathematics, and technology to high school students. The Academy will focus on providing students the foundation of skills needed to pursue career pathways within Information Technology and Engineering, to contribute and support the need of skilled STEM workers in our local economy. Because of our central location, relationships with local businesses, postsecondary articulation and dual-enrollment agreements, the STEM Academy will be uniquely poised to meet these needs.

E. The Mission of the Governor's STEM Academy is to:

- Increase access to STEM specific instructional programs and pathways in Career and Technical Education (CTE).
- Develop a highly-skilled, diverse STEM high school graduate prepared for postsecondary education or the global work force.

II. PARTNERSHIP CAPACITY

The partners' role is to support the goals of the STEM Academy and provide STEM resources and opportunities for all students enrolled in our courses. The Academy has formed strategic partnerships with local businesses, institutions of higher education, and work force development

committees to ensure that its students will be adequately prepared to meet the growing regional work force demands for STEM careers.

The Instructional Services Department of Fairfax County Public Schools' Career and Technical Education will provide at least two active members to the advisory committee who shall oversee the responsibility for the design and planning of new initiatives. The Academy administrator will be responsible for the day-to-day operations, coordination and/or implementation of the Advisory Committee's recommendations.

A. Planning Committee – see Appendix H
B. Advisory Committee – see Appendix H
C. Memorandum of Agreement (MOA) – see Appendix H
D. Statement of Assurances – see Appendix M

A statement of assurances has been signed by the Fairfax County Public Schools' Superintendent on behalf of Marshall Academy stipulating that the Academy Planning Committee has reviewed provisions of the Administrative Procedures Guide for the Establishment of a Governor's STEM Academy and agree to follow the guidelines set forth in the document.

III. PROGRAM DESCRIPTION

A. Program Goals

The Governor's STEM Academy will offer rigorous academic content in career and technical education (CTE) as part of FCPS' elective programs that will prepare students to succeed in both college and careers. Our vision is to offer all students challenging world-class STEM and CTE elective courses that develop specialized skill sets, knowledge, communication, and critical-thinking skills required in today's global and competitive economy. The Academy will value collaboration, communication, creativity and critical thinking as suggested by the Partnership for 21st Century Skills' Framework for Learning

The Academy will explore innovative classroom instruction, project-based learning, industry certifications, and field experiences in addition to providing opportunities for high school students to earn college credit through dual enrollment.

Prior to entering the STEM Academy, students will complete a ***Student Learning Plan (SLP)*** while in middle school that surveys their interests and strengths and matches them to career paths and appropriate coursework through use of the ***VA Education Wizard*** and Naviance's electronic Career Inventory Tools ***Do What You Are***, the ***Cluster Finder***, and the ***Career Interest Profiler***. This four-year plan guides students' course selections and aids in aligning their career goals as they transition from grade to grade. The SLP is revisited and adjusted each year with the students' school counselor during academic advising. The Academy will contribute to providing coursework by offering FCPS students two career pathways:

1. Network Systems – Cyber Security within the Information Technology Career Cluster

2. Engineering and Technology within the Science, Technology, Engineering and Mathematics (STEM) Career Cluster

These pathways, offered at The Academy, will be among others students will be able to select within the SLP enabling them to plan for and set goals around so that they may successfully complete coursework in both elective and core courses as a part of a college and career readiness curriculum. Students will have dual enrollment, AP/IB and young scholars options within their pathways. Those students who choose may apply for the early scholars program. (See Appendix A for detailed course planning sheets.)

The Academy will explore and integrate life and career skills as necessary components of a well-rounded and successful graduate. These skills include global awareness, financial literacy, sustainability, leadership and responsibility, and civic and health literacy. Students will utilize ***Virginia's Workplace Readiness Skills for the Commonwealth (WRS)*** **and** ***Virginia's Career Readiness Certificate (VCRC)*** to better prepare students for employment, internships, and successful transition into a two-year or four-year college.

The Governor's STEM Academy will:

1. Improve student readiness as a gateway to STEM careers
    1. (strategy) Develop and enhance access to Web-based resources
    2. Increase project-based learning opportunities in all STEM classrooms
    3. Increase student engagement through hands-on activities and peek their interests using "real world" authentic learning experiences
2. Increase student knowledge and interest in STEM careers
    a. Increase career exploration in the Academy using Career Connections and technology to provide opportunities for engagement with industry professionals in students preferred fields.
    b. Engage under-represented students in activities that increase STEM interest and participation.
    c. Develop an ePortfolio system (Web-based management tool) to showcase ongoing student work, projects and development.
    d. Utilize technology to enhance the teaching and learning experience
        a. Videoconferencing
        b. Virtual field trips

c. Accessing Web-based research libraries

3. Develop, implement, and strengthen STEM course program access and quality

    a. Create partnerships with postsecondary institutions

    b. Create online course options that support the development of 21st Century Skills

    c. Work closely with industry to develop innovative STEM instructional activities

    d. Implement new STEM courses in collaboration with NOVA

    e. Integrate " Best Practices" in STEM classrooms

        i. Encourage environmental stewardship
        ii. Promote 21st Century Skills
        iii. Encourage inquiry-based learning
        iv. Provide opportunities for students to compare and contrast information
        v. Provide opportunities for students to think critically and enhance problem-solving capacity
        vi. Provide a student–centered classroom environment that creates life-long learners
        vii. Increase awareness of global responsibilities and challenges

4. Increase staff development opportunities for teachers and administrators in STEM pathways

    a. Create partnerships with postsecondary institutions to deliver high quality STEM programs using network-based technology

    b. Provide collaboration opportunities during the school day for teachers to raise student achievement

    c. Provide opportunities for STEM teachers to participate in local, state, and national conferences and professional workshops

B. Objectives and Performance Measures

The goal of the STEM Academy is to promote student achievement by ensuring student progress in both academic and STEM career fields in order to prepare the next generation of workers with the appropriate skill sets aligned with industry demands and business needs. George C. Marshall High School and FCPS pride themselves on strong academic programs. Graduation rates released by the Virginia Department of Education (VDOE) show that 91.4 percent of Fairfax

County Public Schools (FCPS) students from the class of 2011 graduated on time. This figure exceeds the state average of 86.6 percent by 4.8 percentage points and is up slightly from 91.2 percent for the class of 2010. Last year, 92.7 percent of Marshall graduates continued on to post secondary education with an additional 2.3 percent transitioning into the military. *U.S. News* awarded Marshall a Gold Medal and ranked Marshall third among the high schools in the Commonwealth of Virginia as well as 55th in the nation. The Academy will strive to improve these student outcomes and better prepare graduates for careers in Information Technology and Engineering. It is our goal to:

- Ensure all Governor's STEM Academy students have the opportunity to learn in a project-based learning environment and acquire critical-thinking and problem-solving skills required for today's global economy.
- Increase the number of George C. Marshall Governor's STEM Academy students who achieve a B (80%) or better in an advanced mathematics class by two percent over the next four years.
- Increase the number of George C. Marshall Governor's STEM Academy students meeting the requirements of the Advanced Studies Diploma by five percent over the next four years.
- Reduce George C. Marshall High School's dropout rate by .5 percent over the next four years.
- Increase George C. Marshall High School's graduation rate by .5 percent over the next four years.
- Increase the enrollment and retention in postsecondary education by providing students the opportunity to earn dual-enrollment credit. A critical component in the hiring of new staff members will be their ability to be credentialed as a high school dual-enrollment instructor. To that end, by the 2015-16 school year, we will strive to provide students within The Academy the opportunity to earn nine dual enrollment credits by the time they graduate high school. Post-graduation, STEM Academy graduates will receive follow-up career and technical education surveys to determine successful retention in a postsecondary institute or the career field of focus.
- Increase the number of STEM Academy graduates employed in high-wage, high-demand careers by 10 percent (as identified by the Virginia Employment Commission) over the next seven years after high school graduation.
- Reduce the proportion of students requiring remediation in college by five percent by monitoring student achievement (grades) and providing intervention services as required. Success will be measured by the number of students who meet the basic college entrance criteria as determined by the Virginia Community College System. Academic assistance will be provided by Virginia licensed career and transition teachers.

- Increase the number of industry certifications earned by STEM Academy students by five percent each year.
- Ensure all qualified and eligible students participate in a valuable internship, job shadowing or work-based learning experience with local business and industry partners.
- Increase the number of postsecondary credits students earn through dual-enrollment opportunities by five percent over the next four years.
- Increase the number of students who pass the Workplace Readiness Skills by 15 percent over the next three years.
- Seventy-five percent of graduating seniors will create an electronic career portfolio over the next four years.
- Increase the number of students competing in leadership and skill development competitions by 10 percent over the next two years.
- Increase the number of staff development opportunities for career and technical education teachers to actively participate in over the next four years by 25 percent.
- Ninety-five percent of STEM Academy students will complete the Workplace Readiness Skills and CTE course competencies.

C. Description and Program Profile

The Academy will offer a variety of specialized and technical courses designed to prepare motivated students in Fairfax County Public Schools (FCPS) for a successful transition into college and the workplace. The Academy will be open to all students in Fairfax County Public Schools. Classes will be blended with students from around FCPS, the majority of whom will be located geographically closest to The Academy within George C. Marshall High School. (See Appendix C for a current description and program profile.)

FCPS students will maintain attendance for core courses at their base school and travel to The Academy for specialized elective courses. Students will have the opportunity to take The Academy's courses as elective options built into a traditional seven-credit bell schedule (See Appendix D). Courses will be taken alongside other courses required for graduation and enrollment in postsecondary institutions that may include course areas such as English, Social Studies, Science, Mathematics, World Languages, Health and Physical Education, and the Arts.

In concert with business partners and institutions of higher learning, we will challenge students to reach their full potential in their selected career pathway. The Academy will provide students the opportunity to obtain industry-recognized certifications, licensure, postsecondary course credit through dual-enrollment agreements, and valuable career experiences with local business partners and leading national organizations in the greater Washington metropolitan area.

The Academy will operate on the premise that young minds grasp concepts quickly and that students are always eager to try new things. Students will be exposed to curriculum designed to strengthen a student's ability to communicate, collaborate, create, and think critically. The Academy will offer rigorous performance-based courses incorporating the state competencies and today's industry standards aligned with postsecondary institutions for seamless articulations and dual enrollment opportunities. Curricula are written using Jay McTighe's ***Backwards Design Process*** of keeping the end in mind and working from the end of the year to the beginning. Rick Stiggens', ***Assessments for Learning***, both formative and summative will be frequently utilized to identify knowledge gaps in learning, to check for understanding, and to inform teacher professional practice. Teachers will use UVA's Carol Ann Thomlinson's, ***Differentiation and the Brain*** principles in the classroom to engage all students in the learning process.

The Academy will value the whole child and assist in providing a well-rounded education for all students to uncover their passion. Our goal is to instill not only knowledge and information, but to build self-confidence, self-esteem, and create self-directed lifelong learners with a passion for developing workable solutions.

D. Governor's Exemplary Standards Award

The Academy will adhere to the Governor's Exemplary Standards Award program for Career and Technical Education. The Academy is committed to promoting high academic standards and working to ensure all students are making acceptable, measurable, and appropriate student progress. The Academy will align instructional programs with postsecondary education and industry standards while continuing to develop and strengthen the community and business partnerships. Academy teachers will continue to challenge themselves as professionals and participate in professional growth opportunities that enhance student learning.

E. Sequence of Proposed Program and Course Descriptions

1. Network Systems – Cyber Security Pathway within the Information Technology Career Cluster

As documented in Virginia's Economic Development Strategic Plan (2006), the composition of Virginia's work force by industry is changing. Traditional manufacturing is declining, and the service sector continues to grow. Administrative support and sales are the two largest occupational categories, accounting for more than a quarter of the state's work force. The occupational areas projected to grow fastest are computer specialist, business and financial services, and health care support.

Specific Occupations with Largest Percent Increase in Employment, Virginia, 2002-2012 (>499 openings)

		Employment			Openings		
Rank	Occupational Title	Est. 2002	Proj. 2012	% Change	Replacemts	Growth	Total
1	**Network Systems & Data Communic.Analysts**	**5,507**	**9,308**	**69.02%**	**648**	**3,801**	**4,449**
2	Medical Assistants	7,206	12,146	68.55%	1,333	4,940	6,273
3	**Database Administrators**	**4,911**	**7,864**	**60.13%**	**508**	**2,953**	**3,461**
4	Physical Therapist Aides	916	1,456	58.95%	153	540	693
5	Veterinary Technologists and Technicians	1,169	1,847	58.00%	152	678	830
6	Physical Therapist Assistants	1,229	1,918	56.06%	205	689	894
7	Personal Financial Advisors	2,072	3,220	55.41%	269	1,148	1,417
8	**Computer Software Engineers, Applications**	**24,293**	**37,650**	**54.98%**	**2,402**	**13,357**	**15,759**
9	Med. Records and Health Information Technicians	3,353	5,127	52.91%	480	1,774	2,254
10	Self-Enrichment Education Teachers	2,075	3,165	52.53%	255	1,090	1,345
11	Fitness Trainers and Aerobics Instructors	5,196	7,880	51.66%	1,192	2,684	3,876
12	**Computer Software Engineers, Systems Software**	**18,660**	**28,293**	**51.62%**	**1,845**	**9,633**	**1,478**
13	Home Health Aides	9,238	13,966	51.18%	1,210	4,728	5,938
14	Dental Hygienists	3,922	5,897	50.36%	334	1,975	2,309
15	**Network and Computer Systems Administrators**	**12,274**	**18,451**	**50.33%**	**1,361**	**6,177**	**7,538**
16	Environmental Engineers	1,606	2,402	49.56%	273	796	1,069
17	Dental Assistants	7,404	11,061	49.39%	2,070	3,657	5,727
18	**Computer and Information Systems Managers**	**10,215**	**15,099**	**47.81%**	**1,855**	**4,884**	**6,739**

Source: Virginia Work force Council, Work force Development Blueprint (2002)

At full implementation, it is expected that approximately 250 students will participate in the IT pathway.

a. Pathway

Year	Choice 1	Projected School Year of Implementation*
9th grade	Computer Information Systems (6612)	2013-14
10th grade	Computer Systems Technology I (8622) and/or II (8623)	2013-14
11th grade	Computer Network Software Operations (6650)	2013-14
12 grade	Advanced Computer Network Software Operations (6651)	2013-14
	Choice 2	
9th grade	Computer Information Systems (6612)	2013-14
10th grade	Computer Systems Technology I (8622) and/or II (8623)	2013-14
11th grade	Computer Networking Hardware I (8542) & II (8543)	2013-14
12 grade	Computer Networking Hardware III (8544) & IV (8545)	2014-15
	Choice 3	
9th grade	Computer Information Systems (6612)	2013-14
10th grade	Computer Systems Technology I (8622) and/or II (8623)	2013-14
11th grade	Database Design and Management (6660)	2015-16
12th grade	Advanced Database Design and Management (6662)	2016-17

* Please see Appendix C for current course offerings

b. Course Descriptions

Computer Information Systems (6612) – Students apply problem-solving skills to real-life situations through word processing, spreadsheets, databases, multimedia presentations, integrated software activities and the use of the Microsoft IT Academy. Students work individually and in groups to explore computer concepts, operating systems, networks, telecommunications, and emerging technologies.

Computer Systems Technology I, II (8622, 8623) – Students learn the operation and capabilities of both the hardware and operating systems of today's computers and digital devices. They install components and troubleshoot system operations utilizing system tools and diagnostic software. Students prepare and sit for the A+ Certification exam.

Computer Network Software Operations (6650, 6651) – Students learn hands-on IT Computer Management and they set-up Client/Server and WAN/LAN networks in a real-world lab design. Students install, implement, and manage operating systems for clients, servers, and domain controllers. Students learn network and cyber security. Industry certifications: Microsoft Technology Associate (MTA).

Computer Networking Hardware I-IV (8542, 8543, 8544, 8545) – Students design, install, configure, operate, and troubleshoot computer networks. Topics include network architecture, industry standards and communications protocols, networking devices (such as routers and switches), media selection, topologies, data transmission, and cabling for LAN/WAN networks.

Students prepare for Cisco Certified Entry Level Technician (CCENT) and Certified Network Associate (CCNA) exams.

Database Design and Management (6660, 6662) – This is an advanced information technology that provides complete, hands-on computer training in data modeling and database application software with an emphasis on Oracle 9I.

c. Industry Certifications

All students in The Academy will take the appropriate industry certification before they graduate. Industry certifications add value to your high school experience and demonstrate a student's ability to learn and master professional industry standards. Industry certifications set students apart from their colleagues and boost their global competitiveness. The chart that follows below represents industry certifications that will be available to students enrolled in The Academy*.

IT CTE Courses	**Industry Certification**
Computer Systems Technology I, II (8622, 8623)	• CompTIA A+ • CompTIA A+ IT Technician • CompTIA Network +
Computer Network Software Operations I, II (6650, 6651) Microsoft Technology Associate (MTA)	• Networking Fundamentals / MTA Exam 98-366 • Security Fundamentals / MTA Exam 98-367 • Windows Server / MTA Exam 98-365 • Windows OS / MTA Exam 98-349 • Microsoft Certified Professional (MCP) • Microsoft Certified Systems Engineer (MCSE)
Computer Networking Hardware I (8542) & II (8543) Computer Networking Hardware III (8544) & VI (8545)	• IC3 • Cisco CCNA Academy Certificate
Database Design and Management (6660) Database Design and Management with PL/SQL (Oracle) (6662)	• Oracle Program Certifications • IC3 • MOS
Computer Information Systems (6612)	• IC3 • MOS

* Please see Appendix I for Certification Pathways

2. Engineering and Technology within the Science, Technology, Engineering and Mathematics (STEM) Career Cluster

We have fallen short in developing core and STEM skills in the general student population as evidenced by postsecondary remediation data and reports from college faculty and employers regarding lack of core skills and abilities of high school students. The Virginia Department of

Education has identified CTE as a promising avenue for developing STEM literacy and other 21st Century skills through applied learning. Our STEM programs are designed to expand opportunities for high school students to acquire the knowledge and skill sets that will prepare them for multiple postsecondary pathways, especially for training toward high-wage, high-skill occupations in growing industries.

At full implementation, it is expected that approximately 150 will participate in the Engineering pathway.

a. Pathway

Year	Choice 1	Projected School Year of Implementation*
9th grade	Engineering Explorations I (8450)	2015-16
10th grade	Electronics Systems I (8416)	2015-16
11th grade	Electronics Systems II (8412)	2016-17
12 grade	Electronics Systems III (8413)	2016-17
	Choice 2	
9th grade	Engineering Explorations I (8450)	2015-16
10th grade	Aerospace Technology I (8487)	2013-14
11th grade	Aerospace Technology II (8488)	2013-14
12 grade	Geospatial Technology I (8423)	2015-16

* Please see Appendix C for current course offerings

b. Course Descriptions

Aerospace Science (8487, 8488) – Students study aerodynamic principles, aviation history, electrical and mechanical systems, instrumentation, flight operations, safety and security, air traffic control, airport design, economic impacts, rocketry, and satellite and space operations. Numerous lab activities include computer simulators, robotics, and model aircraft design and testing.

Engineering Explorations (8450) – For students interested in engineering, this course builds a solid foundation to move forward in the science, technology, engineering and mathematics (STEM) curriculum. Students are introduced conceptually and analytically to the primary concepts in the four classic engineering disciplines: civil, mechanical, electrical and aerospace engineering. Students will explore and develop projects in these areas while working in real-world collaborative teams. By applying STEM concepts to design problems students will dramatically improve their use of mathematics, computer simulations, scientific analysis, and oral and written skills during this course. This course provides for orientation to the careers and challenges of engineering. Students are actively involved with high-tech devices, engineering graphics, and mathematics scientific principles through problem-solving and critical-thinking

experiences. Students integrate mathematics, science, and technical writing with technology instruction to solve engineering-based problems.

Electronic Systems I, II, III (8416, 8412, 8413) – Students investigate computer circuits, digital electronics, and microprocessor theory and operation, using analytical and hands-on techniques. Topics include: microprocessor architecture, computer logic, digital logic circuits, machine language programming, and microprocessor interfacing. Special topics include hands-on robotics and advanced electronics systems control and manufacturing. This course is STEM-based and will incorporate aspects of science, technology, engineering, and mathematics.

Geospatial Technology I (8423) – This course will introduce students to the theory, vocabulary and concepts behind these and other applications of GIS, while providing students the opportunity to develop basic skills to apply GIS in a variety of contexts. Students will receive instruction in geographic information systems, global positioning systems, remote sensing, digital imaging processing simulation, Geodesy, automated cartography, land surveying, and navigation. Fundamentally, these technologies will enable students to explore and analyze the natural and human-made world, from local to global and beyond. Students will use various tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. These experiences will employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data.

c. Industry Certifications

All students in The Academy will take the appropriate industry certification before they graduate. Industry certifications add value to your high school experience and demonstrate a student's ability to learn and master professional industry standards. Industry certifications set students apart from their colleagues and boost their global competitiveness. The chart that follows below represents industry certifications that will be available to students enrolled in The Academy.

Engineering CTE Course	**Industry Certification or Recognized Test**
Engineering Explorations I (8450)	• Pre-Engineering/Engineering Technology (NOCTI)
Aerospace Science	• Workplace Readiness Skills for the Commonwealth Assessment
Electronics Systems I, II, III (III is phased out in 2014/15) (8416), (8412), (8413)	• Electronics Technology (NOCTI)
Geospatial Technology (8423)	• Workplace Readiness Skills for the Commonwealth Assessment

F. Work-Based Experience

While enrolled in The Academy, students will have the opportunity to participate in the following internship experiences, and college and career activities to include:

- Benefiting from extensive partnerships and internships with Northrop Grumman, TerraWi, and Department of Veteran Affairs.
- Using integrated curriculum that helps students identify connections among mathematics, science, and technology fields.
- Establishing an Academy culture around Virginia's Workplace Readiness Skills to meet soft-skill requirements of future employer and business and industry.
- Having an abundance of opportunities to learn about future careers and leadership through co-curricular competitions and activities, job shadowing experiences, mentoring, clubs, guest speakers, career fairs, and career-related field trips.
- Participating in school and community events that build social and civic responsibilities.
- Opportunity to participate in Cooperative Education while enrolled in courses within the IT Pathway.

Sample Projected Career Experiences	**Number of Projected Students**
Internships	80
Job Shadowing Experiences (not including Groundhog Job Shadow)	200
Mock Interviews, Resume Workshops	450
Mentoring	40
Other: Reality Check Financial Workshop Community Shred Service Learning Activity	450
A Taste of Marshall Academy (see Appendix E)	250
IT Expo (see Appendix G)	300

G. Fiscal Agent Assurance of Funding and Facilities

The fiscal agent for the Governor's STEM Academy will be Fairfax County Public Schools, which currently provides public education services to the community of Fairfax County, Virginia.

H. Materials and Equipment

Materials and equipment for The Academy will follow state purchasing guidelines and may be obtained through local school division funds, Carl D. Perkins Career and Technical Education Act, and through donations from local industry and business partners.

Equipment purchased with state funds will be selected from the state-approved equipment list for career and technical educations programs. Equipment purchased through the Perkins Grant will meet all applicable grant regulations.

1. Science/Technology/Engineering/Mathematics (STEM) Lab

The STEM lab will utilize existing space renovated for a 21st century learning environment. In the new lab, chemistry, biology, and physics will merge with engineering and mathematics. The 3,000 square foot lab will offer collegiate-level applications and sophisticated technologies to optimize research, interaction, and critical thinking. The lab will have two primary zones that allow independent study and group sessions to occur simultaneously. The ***Think Tank*** will encourage students to think out loud and supports global conferencing. It will offer full AV input and output, a plasma TV, LED projector, and an interactive white board. In the ***Lab Zone***, students will have everything they need to apply lessons toward real-life problem solving: flexible configurations, storage, places to plug in, and equipment. Movable tables and individual work carts that roll under counters will give students the flexibility to conduct many experiments. Computer storage with internal charging stations allows students to use their laptops for research or interface with lab equipment. An overhead gridding system and large tabletops will allow for optimal connections to equipment, while speakers and microphones transmit throughout the lab. Additional equipment will include a wind tunnel, Computer Numerical Control (CNC) machines, 3-D prototype printer, large format printer, plasma cutter, and computer workstations with CAD software.

2. Information Technology (IT) Lab

The IT lab will utilize existing space renovated for a 21st century learning environment. The 3,000 square foot lab will offer an independent server room, a lab with 32 data drops and wireless connectivity to accommodate computer workstations, mobile devices, and laser printers. It will offer full AV input and output, plasma TVs, LED projector, an interactive white board, and Cisco teleconference capabilities. Movable tables and individual work carts that roll under counters give students the flexibility to conduct many experiments. Computer storage with internal charging stations allows students to use their laptops for research or interface with lab equipment. An overhead gridding system and large tabletops allow for optimal connections to equipment. Students will study collegiate-level software applications such as Microsoft's Network Administration and Security, Cisco CCNA and Healthcare, Oracle, and A+ computer systems technology to optimize interaction, critical thinking, and problem-solving capabilities in the IT field. The lab has two primary zones that allow independent study and group sessions to

occur simultaneously. The ***Cyber Center*** encourages hands-on applications in a virtual lab environment to increase their ability to reduce vulnerabilities in today's computer network systems. In the ***Networking Center***, students have everything they need to apply and develop flexible network configurations.

I. Internal Evaluation, Policy Review, Feedback, and Data Collection

The Academy will be evaluated by community leaders and industry professionals serving on the Academy Advisory Committee, local school leadership team through the school improvement process, and central office career and technical education assessments and reports that will provide feedback and data for internal evaluation. The Advisory Committee will meet regularly to serve as an advisor on current practices, instructional programs, and for future expansion and planning. Fairfax County Public Schools will incorporate its structured evaluation process into all Academy programs.

IV. Administrative Procedures

A. Partnerships

Business and education partners such as Apple, Google, DoDEA, USA Today, NOVA, George Mason University, and Northern Virginia Technology Council Work force and Education Committee (NVTC) will be leveraged to provide interested students with STEM internships and related experiences beyond the classroom where students can begin to apply learned knowledge and new skill sets.

B. Student Recruitment, Selection Criteria, and Admissions

The Academy courses will be offered to all students in Fairfax County Public Schools. However, it is expected that the majority of the students will be juniors and seniors. Students will have an opportunity to take the first two courses in a pathway at their base school if their schedule does not permit transportation to The Academy. Juniors will be given first priority for enrollment in two-year programs; seniors will be considered first priority in one-year programs.

Beginning in January of each year, the Academy counselor will visit the FCPS Departments of Student Services at each of the high schools and middle schools to brief directors and counselors on plans for the new academic year, application procedures, and timelines for Academy admission. The Academy will also participate in an annual CTE central office special event, "Camp CTE," that recruits school counselors from elementary, middle, high, and secondary schools to tour each of the division's CTE specialized sites to gain "hands-on" experience in a variety of CTE programs offered by the division.

In January and February of each year, Academy staff and faculty will participate in annual elective fairs at all schools. Currently enrolled students at individual feeder schools will participate in the elective fairs to assist in the promotion of The Academy programs along with Academy program faculty.

Prospective students and parents will be invited to attend the Academy during an annual Open House recruitment program (see Appendix C for open house flyer), curriculum nights, and back-to-school night programs. Additionally, prospective students will be invited to visit The Academy and sit in on courses of interest for enrollment (see Appendix C for visitor pass). Base school counselors will provide logistical support to include supplying visitor passes and Academy bus scheduling for interested students. The Academy will place advertisements electronically and in base school newsletters promoting The Academy programs.

The Academy application packets will be managed by base-school counselors. They include application instructions and information on required documents including: formal application form, student essay, attendance record, and school transcript. Applications will be reviewed for completeness by base school counselors and will be forwarded to The Academy. The application deadline will be in late March each year. The Academy application will be part of a centralized special programs application. All Fairfax County Public Schools Career and Technical Education programs are placed on one application for ease of distribution at the base schools

A rubric has been developed to process student applications for seats in The Academy programs (see Appendix B). The rubric considers student academic standing, attendance records, and personal statement of interest in The Academy program. It also indicates whether a student has visited the Academy during one or more of the open-house events. A waiting list will be maintained for all oversubscribed STEM Academy courses.

C. Student Code of Conduct

The Academy will follow all the guidelines, regulations, and policies mandated by the School Board in the Students' Rights and Responsibilities (SR&R) manual required of all students in Fairfax County Public Schools.

D. Transportation

Transportation to The Academy will be provided in most cases to and from feeder schools as long as there is a minimum of five students per shuttle. Academy students will be permitted to drive their personal vehicle to The Academy after they submit the required paperwork and obtain a parking permit. Drivers must adhere to the Virginia law allowing only one other student in the same vehicle if under the age of 18.

E. Staff Recruitment

The Academy shall hire staff members who meet the Virginia teacher licensure requirements and/or postsecondary faculty qualifications. Where applicable, they must have industry-specific education with training and experience, including industry certification.

F. Staff Development

All teachers will have the opportunity to participate in STEM and related professional development opportunities to help deliver world-class STEM instruction and courses. Teachers

will be encouraged to participate in workshops, attend conferences and institutes, and enroll in courses at the local, state and national levels. They will also be encouraged to work with their professional peers on work force development committees at all levels. Teacher training will support research-based best practices and strategies for implementing project-based STEM curriculum and identifying new interdisciplinary courses.

G. Staff Evaluation

Teacher performance evaluation in The Academy will follow the guidelines and policies of the newly adopted Teacher Performance and Evaluation system implemented by Fairfax County Public Schools and approved by the Virginia Department of Education. The primary purpose of the new Teacher Performance and Evaluation system is to help both teachers and their evaluators collect more comprehensive and accurate assessment data for judging teacher effectiveness and quality of instruction. This new process is in alignment with the Academy belief that the most successful way to improve student achievement is to improve teacher effectiveness. Where applicable, teachers must hold the appropriate industry-recognized certifications for the curriculum they are teaching.

H. Parent, Student, and Community Involvement

Parents, students, and the greater Tysons community will be actively involved in Academy planning and hosting of events, such as job fairs and STEM conferences and workshops. STEM Academy personnel will solicit student and parent input at informational workshops, open houses, Advisory Committee meetings, student competitions, career fairs, and parent-driven events.

Students currently in grades 8-11 will have the opportunity to participate in STEM Academy elective fairs, Academy-sponsored open houses, boot-camps, Academy tours, career exploratory workshops, and celebrations. Students will complete career-interest surveys and participate in career pathway workshops in both middle and high school under the guidance of their school counselors, career center specialists, the Academy school counselor and the Academy career experience specialist.

Local businesses and educational institutions (NOVA) will be asked to provide STEM resources, speakers, equipment, training, and donations to expose STEM Academy students to the vast array of today's technologies and limitless capabilities.

I. Student Enrichment Opportunities (see Appendix G)

STEM Camp is open to students in grades 3-5. STEM Camp is designed to give students the opportunity to explore careers and technology as they rotate through a variety of courses over a one week period. STEM camp will provide students with an opportunity to experience new technologies while they rotate through activities such as: Rocketry, CNC and CAD, LEGO robotics, structures, solar cars, and green technologies.

Tech Adventure Camp is open to students in grades 5-7 and is designed to give students the opportunity to explore careers and technology as they rotate through eight areas over a two-week period.

In collaboration with Northern Virginia Technology Council (NVTC), Fairfax County Public Schools hosts an annual Job Shadow Day program for students to gain real-world experiences by shadowing a business professional at his/her workplace. Students are matched accordingly to their career interests and potential internship opportunities.

Engineering students will have the opportunity to participate in a variety of First Robotics competitions.

The Academy will be a participating member of Microsoft's IT Academy, which prepares students and educators to succeed by providing access to 21st century work force skills with Microsoft technologies. Microsoft helps ensure the success of our students by providing access to the latest technology training, resources, software, certification vouchers, staff development, and curricula. The Academy will be able to access E-Learning courses, and receive discounts on products, training, vouchers, and related services.

Additionally, The Academy will participate in the high school cyber security competition: CyberPatriot. The CyberPatriot competition was established by the Air Force Association. Its founding partners are SAIC and CIAS at the University of Texas-San Antonio.

This past summer over 40 students from Marshall Academy participated in a week-long Cyber Security Camp at TerraWi corporate headquarters in McLean, Virginia. Students participated in a hands-on exercise lock-down and defended their computers from threats and viruses. Security experts from around the country spoke about national defense, and cyber warfare. This opportunity will be expanded for the Governor's STEM Academy.

J. Operational Structure

a. Governing Board

Members of the Marshall High School administrative team will serve as the Governing Board for the Governor's STEM Academy. Governing Board members will consist of the following George C. Marshall staff: the Principal, Academy Administrator, Director of Student Services, Career Experience specialist, and the Academy Counselor. In addition, the director of professional and life skills, and the Career and Technical Education instructional coordinator for Fairfax County Public Schools will serve on the Governing Board.

b. Coordination

Fairfax County Public Schools will utilize the current Academy administrator position to oversee the day-to-day operations of The Academy. This position will report to the Academy Planning and Advisory Committee and will be supervised by the principal of the high school.

c. Academy Administrator Responsibilities

- Facilitate the Academy Advisory Committee regarding the design, development, and implementation process.
- Serve as the primary contact to the Virginia Department of Education (VDOE).
- Prepare and monitor the budget related to the Academy, manage program data, transportation, program policies, and staff evaluation.
- Monitor student achievement, co-curricular student organizations, and student enrollment.
- Coordinate Academy staff development activities.
- Implement best practices in teaching and learning and curriculum development.

d. Academy School Counselor Responsibilities

- Serve as the liaison with colleges and universities in the development and oversight of dual-enrollment courses.
- Coordinate the application and selection process for The Academy.
- Develop Academy marketing materials, Web site, other social media.
- Coordinate recruiting efforts for feeder schools.
- Develop the course schedule for The Academy.

e. Academy Career Experience Specialist Responsibilities

- Facilitate business and organizational participation and support of The Academy.
- Provide students with the opportunity to participate in valuable internships with local businesses and industry.
- Coordinate field trip and work force develop opportunities.
- Coordinate resume writing and career fairs.
- Coordinate scholarships and grants for the Academy.

K. Documentation of Insurance (see Appendix L), Budget (see Appendix K), and Other Fiscal Information

Funding for the Academy program will be secured through Fairfax County Public Schools. In addition to the school division's resources, grants, and in-kind donations from business partners will also be used to supplement the instructional programs. Equipment will be funded through FCPS Career and Technical Education via Carl Perkins funding. Instructional supplies will be funded through FCPS Career and Technical Education, based on enrollments and program needs.

Appendix A:
Plans of Study

Marshall, A Governor's STEM Academy

Career Plan of Study

Student Name _____

MS _____ **HS** _____ **Graduation** _____

Today's Date _____ **Counselor** _____

School Division: Fairfax
School: Marshall, A Governor's STEM Academy
Career Cluster: Information Technology
Career Pathway: Network Systems – Cyber Security

This plan of study should serve as a guide, along with other graduation and career planning materials. Courses listed with this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. All plans should meet high school graduation requirements as well as college entrance requirements.

Middle School *Career Exploration*

Grade	English	Math	Science	S.S.	Required Courses or Recommended Electives and/or CTE Courses			NOTES/COMMENTS
7	English 7 (1110)						Computer Solutions (6609)	
8	English 8 (1120)	Algebra I (3130)			**World Languages		Digital Input Technologies (6160)	

CAREER ASSESSMENT: Administration of a career assessment instrument is appropriate at the middle school level to help students and their parents plan for high school (Bridges Choices Explorer® or other assessment product.) Recommended Elective during 7th or 8th grade: Career Search and Investigation (semester course)

Secondary *Career Coaching*

Grade	English	Math	Science	S.S.	Required Courses or Recommended Electives and/or CTE Courses			NOTES/COMMENTS
9	English 9 (1130)	Geometry (3143)	Biology (4310)	World History/Geography (2215)	**World Languages	Health & Physical Ed (7300)	Computer Information Systems (6612)	
10	English 10 (1140)	Algebra II (3135)	Chemistry (4410)	World History/Geography (2216)	**World Languages	Health & Physical Ed (7405)	Computer Systems Technology (8622)/(8623)	
11	English 11 (1150)	*Precalculus (3160) DE 3 Credits	*Physics (4510)	US/VA History (2360)	**World Languages	Economics & Personal Finance (6120)	Computer Network Software Operations (6650) DE 3 Credits or Computer Networking Hardware (8542 & 8543) DE 4 Credits or Database Design and Management (6660) DE 3 Credits	
12	English 12 (1160) DE 6 Credits	Calculus AB (3170) or Calculus BC (3177)	Geosystems (4220)	US/VA Government (2440)			Computer Network Software Operations (6651) DE 3 Credits or Computer Networking Hardware (8544 & 8545) DE 4 Credits or Database Design and Management (6662) DE 3 Credits	Dual Enrollment with NVCC: Networking Fund.-Cisco, ITN 154 (4 credits) Introductory Routing - Cisco, ITN 155 (4 credits)

* Required for advanced studies diploma
** Three years of one foreign language or two years of two foreign languages required for advanced studies diploma

Career Pathway Supplemental Information

Educational-Related Opportunities	Career-Technical Student Organization	Industry-Recognized Credentialing	Work-based Learning	NOTES/COMMENTS
• VDOE Verified Credit • Dual Enrollment with Northern Virginia Community College	• FBLA http://www.fbla.org/ • Skills USA http://www.skillsusa.org	• Internet and Computing Core Certification (IC3) • Microsoft Office Specialist (MOS) • Microsoft Certified Professional (MCP) • A+ Computer Technician (COMTIA) • Cisco CCNA Academy Certificate (Cisco Systems)	• Business Cooperative Internship • Job Shadowing	Students wishing to pursue a 4-year degree should enroll in the AS Degree program at NVCC http://www.nvcc.edu/curcatalog/programs/pdf/IT-AS.pdf

Postsecondary Options
Career Placement

Community College (visit http://nvcc.edu/)

Associate of Science Degree – Information Systems Technology (sample Plan of Study – http://www.nvcc.edu/academics/programs/cat2012/programdetail.aspx?prog_id=2800&subprog_id=0&level=1)

NOTES/COMMENTS

College Placement Assessments (*Reading, Writing, & Math*)

Year 13 1st Sem	College Composition I ENG 111	Precalculus I or higher-level math MTH 163	College Success Skills SDV 100	History Elective	Intro to Computer Apps & Concepts ITE 115	Intro to Telecommunications ITN 100	
Year 13 2nd Sem	College Composition II ENG 112	Social Science Elective	Lifetime Fitness & Wellness PED 116	Applied Calculus I MTH 271	Multimedia Software ITE 170	Software Design ITP 100	
Year 13 Summer							
Year 14 1st Sem	Introduction to Communications CST 110	Humanities/Fine Arts Elective	JAVA Prog I (IPT 120) or C++ Program I (ITP 132)	Physical or Life Science Elective w/Lab	IIT Careers & Cyber Ethics ITE 105		
Year 14 2nd Sem	Humanities/Fine Arts Elective	Social Science Elective	Adv Database Management ITD 256	PC Hardware and OS Architecture ITE 221	Project Management ITP 170	Physical or Life Science Elective w/Lab	

To search for community colleges with related programs visit: http://www.fcps.edu/is/schoolcounseling/careerconnections/students/posthighschool/twoyear.shtml

Technology Center

Topics of Study

- Information Technology
- Computer Network Systems

Resources

- http://www.itt-tech.edu
- http://www.ecpi.edu

To search for related Career and Technical Schools and Centers, visit:
http://www.fcps.edu/is/schoolcounseling/careerconnections/students/posthighschool/professional.shtml

College / University

Related Topics of Study / Majors

- Business Information Technology
- Computer Science
- Information Technology
- Engineering
- Information Systems

Degrees and Majors vary by institution.

List Colleges or Universities of Interest

The VCCS has transfer agreements with 4-year universities such as George Mason University.

- https://www.nvcc.edu/about-nova/directories--offices/administrative-offices/academic/files/GMU-Articulation-2007.pdf
- http://admissions.gmu.edu/TransferGuide/display.asp?program=it_bs

_____

_____

To search for colleges/universities with related majors, visit:
http://www.fcps.edu/is/schoolcounseling/careerconnections/students/posthighschool/fouryear.shtml

RELATED CAREERS

Network Design and Administration--Communications Analyst, Data Communications Analyst, Information Systems Administrator, Information Systems Operator, Information Technology Engineer * Network—Administrator, Analyst, Architect, Engineer, Manager, Operations Analyst, Security Analyst, Specialist, Technician, Transport Administrator * PC Support Specialist * Systems Support Lead * Network Engineer * Systems—Administrator, Engineer, Support Lead * Technical Support Specialist * User Support Specialist * Telecommunications Network Technician

Career Plan of Study

Student Name _____

MS _____ **HS** _____ **Graduation** _____

School Division: Fairfax
School: Marshall, A Governor's STEM Academy
Career Cluster: Science Technology Engineering and Mathematics
Career Pathway: Engineering and Technology

Today's Date _____ **Counselor** _____

This plan of study should serve as a guide, along with other graduation and career planning materials. Courses listed with this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. All plans should meet high school graduation requirements as well as college entrance requirements.

Middle School *Career Exploration*

Grade	English	Math	Science	S.S.	Required Courses or Recommended Electives and/or CTE Courses			NOTES/COMMENTS
7	English 7 (1110)				Technology Exploration 7 (8461)	Computer Solutions (6609)		
8	English 8 (1120)	Algebra I (3130)			Technology Exploration 8 (8462)	Digital Input Technologies (6160)		

CAREER ASSESSMENT: Administration of a career assessment instrument is appropriate at the middle school level to help students and their parents plan for high school (Bridges Choices Explorer® or other assessment product.) Recommended Elective during 7th or 8th grade: Career Search and Investigation (semester course)

Secondary *Career Coaching*

Grade	English	Math	Science	S.S.	Required Courses or Recommended Electives and/or CTE Courses			NOTES/COMMENTS
9	English 9 (1130)	Geometry (3143)	Biology (4310)	World History/Geography (2215)	**World Languages	Health & Physical Ed (7300)	Engineering Explorations 1 (8450)	
10	English 10 (1140)	Algebra II (3135)	Chemistry (4410)	World History/Geography (2216)	**World Languages	Health & Physical Ed (7405)	Aerospace Technology I (8487) OR Electronics Systems I (8416)	
11	English 11 (1150)	Precalculus (3160) DE 3 Credits	Physics (4510)	US/VA History (2360)	**World Languages	Basic Technical Drawing (8435)	Aerospace Technology II (8488) or Electronics Systems II (8412	
12	English 12 (1160) DE 6 Credits	Calculus AB (3170) or Calculus BC (3177)	Geosystems (4220)	US/VA Government (2440)	Economics & Personal Finance (6120)	Engineering Drawing (8436)	Electronics Systems (8413) or GeospatialTechnology (8423) DE 3 Credits	Dual Enrollment with NVCC: Geospatial Tools & Tech, GEOG 161 (3 credits)

* Required for advanced studies diploma
** Three years of one foreign language or two years of two foreign languages required for advanced studies diploma

Career Pathway Supplemental Information

Educational-Related Opportunities	Career-Technical Student Organization	Industry-Recognized Credentialing	Work-based Learning	NOTES/COMMENTS
	• Technology Student Association http://www.vatsa.org/ • ACE Mentoring	• Brainbench Computer Aided Design (CAD) • NOCTI Pre –Engineering/Engineering Technology • NOCTI Electronics Technology • Automotive Technology - National Automotive Technicians Education Foundation (NATEF) • Electrical Construction Technology • I-CAR	• Career Awareness Education • Job Shadowing • Internship/Mentorship • Service Learning • Workplace Readiness Skills	

POSTSECONDARY OPTIONS
Career Placement

Community College (visit http://nvcc.edu/)

Associate of Science Degree - Engineering (sample Plan of Study – *NVCC website*)							NOTES/COMMENTS
College Placement Assessments (*Reading, Writing, & Math*)							
Year 1 1st Sem	College Chemistry CHEM 111	Intro to Engineering EGR 120	College Composition ENG 111	Calculus/Analytic Geometry MTH 173	Lifetime Fitness PED 116	Elective SDV	
Year 1 2nd Sem	Computer Programming EGR 126	College Composition ENG 112	Calculus/Analytic Geometry II MTH 174	General Univ Physics I PHY 231			
Year 1 Summer							
Year 2 1st Sem	Solid Mech (Statics) EGR 240	Humanities	Vector Calculus MTH 277	Social Science Elective			
Year 2 2nd Sem	Elective EGR	Engineer Mech (Dynamics) EGR 245	Mechanics of Materials EGR 246	Humanities/Fine Arts Elective	General Univ Physics II PHY 232		

To search for community colleges with related programs visit: http://www.fcps.edu/is/schoolcounseling/careerconnections/students/posthighschool/twoyear.shtml

Technology Center

Topics of Study	Resources	NOTES/COMMENTS
• Robotics and Automation Technology • Communication Technology • Digital Systems • Systems Control • Electronic and Cyber Security • Digital Simulation • Artificial Intelligence	http://www.ohwy.com/va/h/hx248970.htm http://www2.itt-tech.edu/cts/index.cfm?code=184316 To search for related Professional Technical Schools and Centers, visit: http://www.fcps.edu/is/schoolcounseling/careerconnections/students/posthighschool/professional.shtml	

College / University

Related Topics of Study / Majors	*List Colleges or Universities of Interest*	NOTES/COMMENTS
• Engineering • Engineering Technology • Electrical Electronics Engineering • Systems Engineering • Computer Engineering	_____ _____ _____ To search for colleges/universities with related majors, visit: http://www.fcps.edu/is/schoolcounseling/careerconnections/students/posthighschool/fouryear.shtml	

RELATED CAREERS

Aerospace Engineer * Aeronautical Engineer * Agricultural Engineer * Agricultural Technician * Application Engineer * Architectural Engineer * Automotive Engineer * Biomedical Engineer * Biotechnology Engineer * Chemical Engineer * Civil Engineer * Communications Engineer * Computer Engineer * Computer Hardware Engineer * Computer Programmer * Computer Science Technician * Computer Software Engineer * Construction Engineer * Consultant * Development Engineer * Drafter * Electrical Engineer * Electrician * Electronics Technician * Energy Transmission Engineer * Environmental Engineer * Facilities Technician * Fire Protection Engineer * Geothermal Engineer * Hazardous Waste Engineer * Hazardous Waste Technician * Human Factors Engineer * Industrial Engineer * Industrial Engineering Technician * Licensing Engineer * Manufacturing Engineer * Manufacturing Technician * Manufacturing Processes Engineer * Marine Engineer * Materials Engineer * Materials Lab & Supply Technician * Mechanical Engineer * Metallurgic Engineer * Mining Engineer * Naval Engineer * Network Technician * Nuclear Engineer * Ocean Engineer * Operations Research Engineer * Packaging Engineer * Packaging Technician * Petroleum Engineer * Pharmaceutical Engineer * Plastics Engineer * Power Systems Engineer * Product Design Engineer * Project Engineer * Project manager * Prototype Engineer * Quality Engineer * Quality Technician * Radio/TV Broadcast Technician * Radiology Engineer * Researcher * Safety Engineer * Software Engineer * Sound Technician * Structural Engineer * Survey Technician * Systems Design Engineer * Technical Sales Manager * Technical Writer * Telecommunications Engineer * Textile Engineer * Transportation Engineer

Appendix B:

Application and Rubric

APPLICATION PROCESS FOR HIGH SCHOOL ACADEMY AND OTHER SPECIALIZED PROGRAMS

STUDENT INSTRUCTIONS

1. **Choose an Academy or Specialized Program**
   - Review the *Academy and Other Specialized Programs Course Offerings* (pages 2 and 3) to identify the course and location you are interested in attending.
   - Think about a second course choice if you are willing to enroll in another course at the *same location* in the event your first choice is full.
   - Discuss your course interests with your parent or guardian.
   - Find more information about the academy and other specialized courses at http://www.fcps.edu/is/cte/index.shtml.

LOOK

   - If you are applying for and plan to attend two (2) or more courses, a separate application and student statement is required for each course.

2. **Complete the Application for Academy and Specialized Programs**
   Please complete all information, including e-mail addresses and phone numbers for both you (student) and your parent/guardian, on the application. This contact information is extremely helpful as student schedules are developed.
   - Electronic fillable form (see page 4 of this document or also available at http://www.fcps.edu/is/cte/academyapplication.shtml); please print two (2) copies to give to your counselor. (If you print the forms and then fill them out, please print legibly.)

   (Note: If the course you want to take is offered at more than one location, your counselor will help determine which academy you should attend.)

3. **Student Statement**
   - All students MUST write and submit a personal statement (one paragraph) describing their interest, experiences, and goals as they relate to the course for which they are applying.
   - An electronic, fillable form with guidelines to *type* the statement can be found on page 5 of this document. Or, you may *handwrite* your statement on a copy of the form; print page 5 or ask your counselor for a copy of the Student Statement form. (Also available at: http://www.fcps.edu/is/cte/academyapplication.shtml.)
   - The content of the statement is the most important consideration (as opposed to grammar and spelling). Please make sure it is legible if it is handwritten. The paragraph should not exceed 350 words.

4. **See Your School Counselor**
   - Meet with your counselor to review your academy/specialized program choice(s) and to complete the application.
   - Give your counselor your printed or handwritten Student Statement.

LOOK

   - Your counselor will prepare an Application Packet to send to the academy/specialized program which will include your student statement, the application, and other required school documents (transcript and attendance).

APPLICATION PACKETS MUST BE RECEIVED AT THE ACADEMY OR OTHER SPECIFIED LOCATION BY MARCH 22, 2013.

Staple Here

APPLICATION FOR ACADEMY AND SPECIALIZED PROGRAMS
2013-2014

Staple documents behind this application in the following order: Student Transcript, Current Year's SASI Period Attendance/Days of Activity, Student Statement, other support documentation. *This becomes the application packet.* View detailed application instructions at: http://www.fcps.edu/is/cte/academyapplication.shtml. Application packet must be received at the specified location by **March 22, 2013**.

Name _____ Student ID# _____
Last First MI

Student Phone (cell)_____ Student E-Mail _____
or N/A

Parent/Guardian _____ Work/Cell Ph _____ E-Mail _____
Last First

Base School _____ Counselor _____ Counselor Phone _____

Time of Day Preference: ____ AM ____ Mid-Day ____ PM Transportation *may* be available. If so, is it requested? ____ Yes ____ No

Counselor: On a separate page, include scheduling restraints, additional comments, or other relevant information which could help with selection, placement and/or support services.

Location Legend (Please Check √) ***Send Original Application to Academy Location or as Specified (must be received by March 22):***

Academy Courses: ____ Chantilly (C) ____ Edison (E) ____ Fairfax (FX) ____ Falls Church (FC) ____ Marshall (M) ____ West Potomac (WP)

Classroom on the Mall (COM): ____ Fair Oaks (FO) ____ Tysons Corner (TC) *Send Classroom on the Mall application to Marketing Program Manager at Fairfax Ridge*

Practical Nursing: Fairfax County School of Practical Nursing ____ (FCSPN at Plum Ctr) *Send Practical Nursing application to Health and Medical Sciences Program Manager at Fairfax Ridge*

Construction Tech: Spring Village Residential Site: ____ (SV) *Send Spring Village application to Trade & Industrial Education Program Manager at Fairfax Ridge*

Course Selection – Please indicate *preferred* course with a "1" and *alternate* course with a "2"

Note: If you are applying for and plan to attend two (2) or more courses, a separate application and statement is required for each course.

ALL COURSES OR COURSE COMBINATIONS (S1 &S2) ARE EQUIVALENT TO TWO (2) CREDITS UNLESS OTHERWISE NOTED.

____Aerospace Science 1 (1 credit – 848726) (M)
____Aerospace Science 2 (1 credit – 848826) (M)
____Air Force JROTC 1 (Foundation) (791627) (C)
____Air Force JROTC 2 (Advanced) (791927) (C)
____Animal Science 1 (831027) (C) (E)
____Animal Science 2 (831127) (C) (E)
____Automotive Collision Service 1 (1 credit – 867626) (C) (E) (M)
____Automotive Collision Service 2 (867727) (C) (E) (M)
____Automotive Collision Service 3 (867827) (C) (E) (M)
____Automotive Technology 1 (1 credit – 850626) (C) (E) (M)
____Automotive Technology 2 (850727) (C) (E) (M)
____Automotive Technology 3 (850827) (C) (E) (M)
____Business Cooperative Internship (679920)
____Carpentry 1 (1 credit – 860126) (C) (E)
____Carpentry 2 (860227) (C)
____Carpentry 3 (860327) (C)
____Chinese 1 (1 credit – 581026) (FX) (M)
____Chinese 2 (1 credit – 582026) (FX) (M)
____Chinese 3 (1 credit – 583026) (M)
____Chinese 4 (1 credit – 584026) (M)
____Chinese 3 & 4 (583033, S1 & 584034, S2) (FX)
____Chinese, AP (1 crd – 584004), IB SL I (1 crd – 584208), IB SL II (1 crd – 585208) (M)
____Cisco 1 Part A & B (½ crd – 854232, S1 & ½ crd – 854332, S2) (C)** (M-health focus)
____Cisco 2 Part A & B (½ credit – 854432, S1 & ½ credit – 854532, S2) (C)**
____Classroom on the Mall: Fashion Marketing 2 (1 credit – 814523) (COM-FO) (COM-TC)
____Classroom on the Mall: Marketing Management (1 credit – 813223) (COM-FO) (COM-TC)
____Computer Systems Technology - A+ Level 1 & Level 2 (862232, S1 & 862332, S2) (C) (E) (M)
____Construction Tech 1 – Spring Village (1 credit – 851561) (SV)
____Construction Tech 2 – Spring Village (851662) (SV)
____Construction Tech 3 – Spring Village (851762) (SV)
____Cosmetology 1 (852727) (C) (E) (M)
____Cosmetology 2 (852827) (C) (E) (M)
____Criminal Justice 1 (1 credit – 870226) (C) (E) (FC) (M) (WP)
____Criminal Justice 2 (870327) (C) (E) (FC) (M) (WP)
____Criminal Justice 3 (870427) (C) (E) (FC) (M) (WP)
____Culinary Arts 1 (827527) (C) (E) (M)
____Culinary Arts 2 (827627) (C) (E) (M)
____Dance 1 (1 credit – 931126) (FX)## (WP)
____Dance 2 (1 credit – 931326) (FX)## (WP)
____Dance Performance & Appreciation (formerly Dance 1) (931127) (FX)## (WP)
____Dance Performance & Technique (formerly Dance 2) (931327) (FX)## (WP)
____Dance Performance & Artistry (formerly Dance 3) (931527) (FX)## (WP)
____Dance Performance & Choreography (formerly Dance 4) (931927) (FX)## (WP)
____Dental Careers 1 (832827) (C) (FC) (WP)
____Dental Careers 2 (832927) (C) (FC) (WP)
____Early Childhood Careers 1 (828527) (C) (FC) (WP)
____Early Childhood Careers 2 (828627) (C) (FC) (WP)
____Electrical Construction and Engineering 1 (1 credit – 853326) (E)
____Electrical Construction and Engineering 2 (853427) (E)
____Electrical Construction and Engineering 3 (853527) (E)
____Engineering Math (1 credit – 316326) (C)
____Engineering Physics 2 (1 credit – 452026) (C)
____Engineering Systems 1 (1 credit – 845126) (C)
____Engineering Systems 1 – Girls Exploring Engineering (1 crd – 845126) (C)
____Engineering Systems 2 (1 credit – 845226) (C)
____Entrepreneurship 1 (1 credit – 909326) (C) (M)
____Entrepreneurship 2 (1 credit – 909416) (C) (M)
____Exploring Health Sciences (830226 S1) & Exploring the Language of Medicine (838326 S2) (C) (FC) (WP)
____Fashion Design 1 (828027) (FX)## (WP)
____Fashion Design 2 (828127) (FX)## (WP)
____Fire & Emergency Medical Sciences 1 & 2 (833326 S1 & 833426 S2) (FC)
____Geographic Information Systems 1 (1 credit – 842326) (C)
____Heating, Ventilation, Air Conditioning, and Refrigeration 1 (1 cr–850326) (E)
____Heating, Ventilation, Air Conditioning, and Refrigeration 2 (850427) (E)
____Heating, Ventilation, Air Conditioning, and Refrigeration 3 (850527) (E)
____Hotel Marketing 1 (816027) (E) (M)
____Hotel Marketing 2 (816227) (E) (M)
____Independent Research – Engineering (1 credit – 845326) (C)
____Introduction to Hotel Marketing (1 credit – 816026) (E) (M)
____Korean 1 (1 credit – 587026) (FX)
____Korean 2 (1 credit – 587526) (FX)
____Korean 3 & 4 (588026 S1 & 588526 S2) (FX)
____Landscape Architecture and Turf Management 1 (1 credit – 803626) (E)
____Landscape Architecture and Turf Management 2 (805127) (E)
____Manufacturing Systems 1 (1 credit – 842526) (C)**
____Marketing Cooperative Internship (*Co-op*) (819920 *or* 819921)
____Medical Assistant 1 & 2 (834526 S1 & 834626 S2) (C) (FC) (WP)
____Music & Computer Technology 1 (922527) (FX)## (WP)
____Music & Computer Technology 2 (922627) (FX)## (WP)
____Network Administration 1 & 2 (665032 S1 & 665132 S2) (C)** (E) (M)
____Oracle 1 & 2 (666032 S1 & 666232 S2) (C) (E)
____Pharmacy Technician 1 & 2 (830526 S1 & 830626 S2) (C) (FC) (WP)
____Physical Therapy/Occupational Therapy 1 (836527) (WP)
____Physical Therapy/Occupational Therapy 2 (836627) (WP)
____Practical Nursing 1 & 2 (835726 S1 & 835826 S2) (FCSPN at Plum Ctr)
____Professional Musical Theatre & Actor's Studio 1 (143027) (FX)##
____Professional Musical Theatre & Actor's Studio 2 (144027) (FX)##
____Professional Musical Theatre & Actor's Studio 3 (145027) (FX)##
____Professional Photography Studio 1 (1 credit – 860726) (FX)
____Professional Photography Studio 2 (860827) (FX)
____Professional Photography Studio 3 (860927) (FX)
____Professional Television Production 1 (1 credit – 868826) (FX)## (WP)
____Professional Television Production 2 (868927) (FX)## (WP)
____Professional Television Production 3 (869027) (FX)## (WP)
____Small Engine Repair (1 credit – 872426) (E)
____Teachers for Tomorrow 1 (1 credit – 906226) (C)
____Teachers for Tomorrow 2 (1 credit – 907226) (C)

This Fairfax course requires an audition/interview

**** This Chantilly course *may* be taken as part of the *Governor's STEM Academy*. For more information, visit http://www.fcps.edu/ChantillyAcademy/.**

No student in Fairfax County Public Schools shall, on the basis of race, color, sex, religion, national origin, marital status, or disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity.

OFFICE USE ONLY: _____Accepted _____Waitlisted _____Denied _____SASI _____FMP

DATE RECEIVED

STUDENT STATEMENT FOR HIGH SCHOOL ACADEMY AND SPECIALIZED PROGRAM

Student Statement must be sent as a part of the Application Packet (see instructions at the top of the application form).
Application Packets must be received at the specified location by **March 22, 2013**.

Name_____ _____ _____ Student ID# _____
Last First Middle Initial

Please write a personal statement (one paragraph) describing your interest, experiences and goals as they relate to the course for which you are applying. A personal statement provides detail beyond grades and numbers on your transcript. It will help the academy to know you better. Therefore, be thorough as to why you should be considered for admission.

Here are some guidelines that may be helpful as you write your statement:

- Include your goals for the future (career).
- Explain your interest in the course.
- Include activities (in or out of school) in which you have participated that relate to the desired academy program. These may include courses, work experience (paid or unpaid), hobbies, organizations, or other activities.
- If you have any special circumstances that you would like the academy to consider, please include this information as well.

The content of your statement is the most important consideration (as opposed to grammar and spelling). Your paragraph should not exceed 350 words. Please make sure the statement is legible if it is hand written. This document is also available electronically as a fillable form at http://www.fcps.edu/is/cte/academyapplication.shtml. If you choose to type your statement, please print two (2) copies to give to your school counselor.)

Please give your statement to your counselor to include in the Application Packet.
SY2013-2014

APPLICATION FOR ACADEMY AND SPECIALIZED PROGRAMS
RUBRIC FOR SELECTION PROCESS

Name_____ Student Number_____ Base School _____

Transcript Rating	3	2	1	0	Student Score
Attendance	Under 8 Absences	8-11 Absences	12-15 Absences	Over 15 Absences	
GPA	Over 2.5	2.0 - 2.5	Below 2.0 Upward Trend	Below 2.0 No Upward Trend	
Grade Level	Junior in Level 1 of 2 Senior in Level 1 of 1		Senior in Level 1 of 2	Will not be a Junior as course requires	
Prerequisites or Academy Approval	Exceeds	Meets or Meets with academy approval		Does not meet	
				Transcript Rating Total =	

Statement Rating	3	2	1	0	Student Score
Future Career Goals	Related to course	Somewhat related to course	Not related to the course	Not addressed in the statement	
Interest in the Course	Solid interest (dedicated, passionate)	Somewhat interested (exploring interest)	Vaguely interested (taking course for fun)	Not addressed in the statement	
Related Activities	Many or intensely related materials	Some or somewhat related activities	Few or vaguely related activities	None or not addressed in statement	
				Statement Rating Total =	

Academy Visit	Add 1 point for student visit; Add 0 points if no visit	

STUDENT TOTAL: Transcript Rating _____ + Statement Rating _____ + Academy Visit _____ =	

CONSIDER THE FOLLOWING IF COURSE IS OVER-SUBSCRIBED

Date Application Received:_____ ☐ on time and complete (+ 2 points) ☐ late and/or incomplete (+ 0 points) **Adjusted Rating Total =**	

Revised 01/2012

Appendix C:

Marshall Academy Overview

Marshall Academy in Fairfax County Public Schools

What is Marshall Academy?

Marshall Academy is a "school within a school" that offers a variety of specialized and technical courses to highly motivated students in Fairfax County Public Schools. Classes are blended with students from predominantly 7 High Schools in 11 course areas. Marshall Academy provides students the opportunity to obtain highly desirable industry recognized certifications, licensure, post-secondary course credit, and valuable career experiences with local business partners and leading national organizations in the greater Washington metropolitan area.

It is our mission to provide a student-centered learning environment that emphasizes hands-on learning, critical thinking, college preparation, and career readiness. We are a performance-based educational institution which collaborates across industries to keep up with trends in the industry and post secondary education.

Application / Registration Process

1. Meet with your school counselor (during the regular registration window) to talk about how to add Marshall Academy courses to your schedule.
2. Visit the Marshall Academy class you are considering (optional/encouraged – see below for more information)
3. Attend the Marshall Academy Open House & Spaghetti Dinner Wednesday, February 20th, 2013 5:30-7pm in Marshall HS Cafeteria (optional)
4. Complete required materials for the FCPS Academy Application packet (see your school counselor)
5. March 22nd: All applications due to the Academy (filled out by you, sent by your school counselor)
6. You will be notified in May if you have been accepted, waitlisted or denied admission. Admissions decisions are based on a variety of factors with attendance and interest in the course being the most important.

How does it work?

Level 1 Courses are open to all students with preference given to Sophomores in a 3 Level class and Juniors in a 2 Level class. A class from Marshall Academy is graded and placed on your own high school's transcript just as if you had taken the class at your own school.

FCPS bus transportation is usually provided from your school to Marshall Academy. Typically, students will miss no or minimal class time for travel because of buffers built into the schedule. Marshall Academy courses run on the following block schedule: AM Block: 7:20-8:50am Mid Block: 9:20-10:50am PM Block: 11:20-12:50

Visit - Come see for yourself!

Come visit us at Marshall Academy. Visits provide students the opportunity to experience the class first-hand, learn about course requirements and expectations from the teacher, and see all that Marshall Academy has to offer. Visits occur during the regular school day (through a pre-arranged absence in one of your current classes) and are available to students Wednesdays and Thursdays from February 4th through March 21st. See your school counselor to arrange a visit. *Seeing a class in action can be really helpful in making your decision, but visits are optional*

Need more information?

Check us out online at http://www.fcps.edu/marshallacademy/ or contact us with any questions!

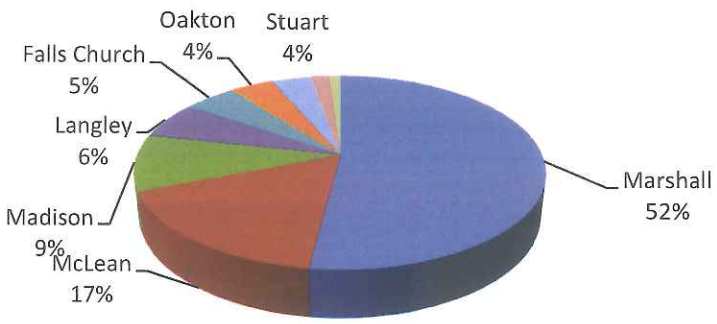
School Counselor for Marshall Academy Niki Haubner 703-714-5594 nicole.rosetthaubner@fcps.edu

MARSHALL ACADEMY – Who we are (2012-13 School Year)

779 students from 64 countries

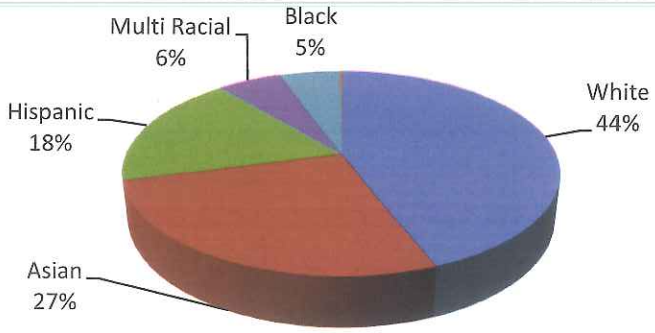
Feeder Schools

Marshall High School	405
McLean High School	132
Madison High School	73
Langley High School	48
Falls Church High School	39
Oakton High School	31
Stuart High School	29
Alternative Schools	13
Other	9



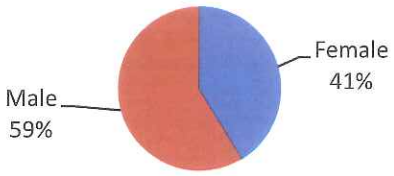
Ethnicity

White	343
Asian	209
Hispanic	139
Multi Racial	44
Black	43
American Indian	1



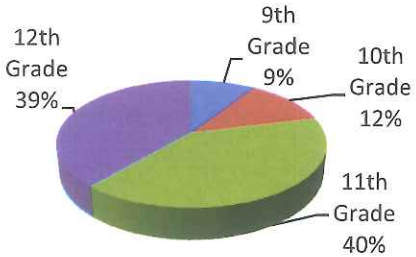
Gender

Male	457
Female	322



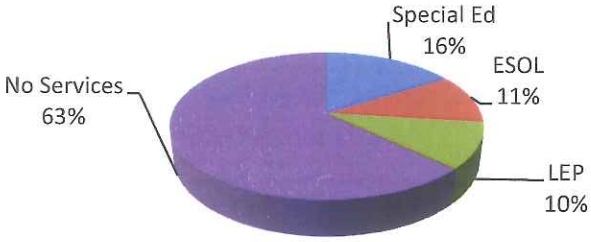
Grade Level

9th	71
10th	93
11th	313
12th	301
Post Graduate	1



Special Services

Special Ed	124
English Language Learners (ESOL)	85
Limited English Proficiency (LEP)	79
No Services	491



Marshall Academy Teacher & Course Listing 2012-2013

Red Day = Odd = A Day **Blue Day = Even = B Day**

Course	Teacher	Course Level & Credits	Course #	Blocks	Periods	Meeting Days
Cosmetology	Vanessa Hinton	Cosmetology 1 (2 Credits)	852727	AM	1st & 2nd	Every Day
				MID	3rd & 4th	Every Day
		Cosmetology 2 (2 Credits)	852827	PM	5th & 6th	Every Day
Culinary Arts	Ciaran Devlin	Culinary Arts 1 (2 Credits)	827527	AM	1st & 2nd	Every Day
			827527 & 8275PH	MID & PM	3rd & 5th	Odd Days
				MID & PM	4th & 6th	Even Days
		Culinary Arts 2 (2 Credits)	827627 & 8276PH	MID & PM	3rd & 5th	Odd Days
				MID & PM	4th & 6th	Even Days
Criminal Justice	Chuck Ponsart	Criminal Justice 1 (1 Credit)	870226	AM	2nd	Even Days
				MID	4th	Even Days
				PM	6th	Even Days
		Criminal Justice 2 (2 Credits)	870327 & 8703PH	AM & MID	1st & 3rd	Odd Days
Auto Tech	Erik Falk	Auto Tech 1 (2 Credits)	850627	AM	1st & 2nd	Every Day
			850627 & 8506PH	MID & PM	3rd & 5th	Odd Days
		Auto Tech 2 (2 Credits)	850727 & 8507PH	MID & PM	4th & 6th	Even Days
Auto Collision	TBA	Auto Collision 1 (2 Credits)	867627	AM	1st & 2nd	Every Day
				MID	3rd & 4th	Every Day
		Auto Collision 2 (2 Credits)	867727	MID	3rd & 4th	Every Day
Aerospace Science	TBA	Aerospace 1 (1 Credit)	848726	AM or MID	2nd or 4th	Even Days
		Aerospace 2 (1 Credit)	848826	MID	4th	Even Days
Entrepreneurship	Jen Hendrickson	Entrepreneurship 1 (1 Credit)	909326	AM	1st	Odd Days
				MID	3rd	Odd Days
				MID	4th	Even Days
		Entrepreneurship 2 (1 Credit)	909416	AM	2nd	Even Days
Hotel Marketing	Pat Edwards	Intro to Hotel Mktg (1 Credit)	816026	PM	5th	Odd Days
		Hotel Marketing 1 (2 Credits)	816027 & 8160PH	AM & MID	1st & 3rd	Odd Days
		Hotel Marketing 2 (2 Credits)	816227 & 8162PH	AM & MID	2nd & 4th	Even Days
Network Administration	AJ Jones	Network Admin 1 & 2 (2 Credits)	665032 & 665132	AM	1st & 2nd	Every Day
				MID	3rd & 4th	Every Day
				PM	5th & 6th	Every Day
Computer Systems Tech A+	Jason Simeon	Comp Systems Tech A+ 1 & 2 (2 Credits)	862232 & 862332	AM	1st & 2nd	Every Day
				MID	3rd & 4th	Every Day
				PM	5th & 6th	Every Day
Chinese	Jie Lei	Chinese 1	581026	MID	3rd	Odd Days
				PM	5th	Odd Days
		Chinese 2	582026	AM	2nd	Even Days
				Mid	4th	Even Days
				PM	6th	Even Days
		AP Chinese	584004	AM	1st	Odd Days
		IB Chinese 2	585208			
	Li Fu	Chinese 3	583026	AM	1st	Odd Days
				MID	3rd	Odd Days
		Chinese 4	584026	MID	4th	Even Days
		IB Chinese 1	584208			

Marshall Academy Newsletter

Newsletter of Marshall Academy Happenings
ISSUE 002 JANUARY 2013

In this issue:

DECA's Community Service Project
Second Annual Taste of the Academy
Congratulations Entrepreneurship Students
Cyber Patriot News
Tysons Regional Chamber
Cosmetology Hosts Event

DECA's Community Service Project

From Dec. 3-14, 2012 GCM DECA coordinated their annual community service project in collaboration with School Resource Officer, Tom Harrington. Members supported children who have lost a parent in the line-of-duty who will visit Washington, D.C. during National Police Week in May 2013 on behalf of Concerns of Police Survivors (C.O.P.S.). Their goal was to raise funds to create 250 "honor bags" for these guests to welcome them to a week where they will receive counseling and special activities to remember their fallen loved ones.

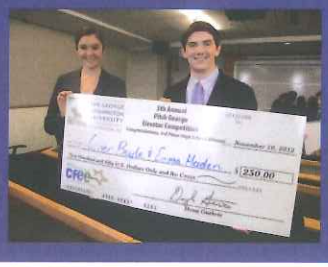
There were a few activities that supported the event. Thursday, Dec. 6th at 8:45 a.m. a Fairfax County Police Department helicopter landed on the upper grass practice field behind the school. Additional FCPD personnel visited on Dec. 12th during Lunch periods and a FCPD motorcycle unit on Dec. 13th during all Lunch periods. On Thursday, Dec. 13th was "Cops and Robbers" Spirit Day. This was a day where students decided which side of the law they were on and dressed accordingly.

A Taste of Marshall Academy 2012

Marshall Academy hosted it's second annual "A Taste of Marshall Academy" on Thursday, December 13th. This event allowed the opportunity to turn the tables on students and permit them to teach guests, consisting of teachers and counselors. The day ended with a student panel which provided a chance for the guests to hear about the opportunities offered at Marshall Academy directly from the students (pictured right). Food was provided by Chef Devlin & 5 Star Café students and the event was lead by Academy counselor, Niki Haubner.

Congratulations Entrepreneurship Students

The Marshall Academy **Entrepreneurship** Program would like to congratulate several students for their success at the 5th Annual Pitch George Competition at George Washington University on Saturday, Nov. 10th. Students gave a three minute elevator pitch about a business they would like to create. Marshall Academy represented a semi-finalist, a 5th place winner, 4th place winner, and two 3rd place winners who received $250 for their TechConnect concept. Three students also received $100 for being "Fan Favorites" at the event.



Cyber Patriot News

Marshall Academy is very proud to announce that two of its Cyber Patriot teams are moving onto *The National Finals Competition* which will take place March 14-16 at the Gaylord National Convention Center in National Harbor, Maryland. The Cyber Security Club is sponsored by Jason Simeon and mentored by Ryan Walters of TerraWi.

CyberPatriot is the premiere national high school cyber defense competition created by the Air Force Association and sponsored by Northrop Grumman. Last year Marshall Academy's Cyber team scored 7th in the nation out of 500 plus teams in the CyberPatriot IV Open Division.

Fairfax County Partners with the Tysons Regional Chamber

Fairfax County Public Schools has partnered with the Tysons Regional Chamber of Commerce to sponsor a Job Shadow Program for high schools within the chamber's district including Madison, Marshall and Oakton High Schools as well as Marshall Academy. During January and February students will job shadow in various fields including business management, operations, cosmetology, IT and finance.

Fairfax Public Access will air a segment on the Job Shadow Program on Vienna Tysons TV. Students who shadowed with Dominion Power and Vital Edge Solutions will be featured. Tune into the segment which will air on Saturday, February 2nd at 9:30pm, Sunday, February 3rd at 6am and Wednesday, February 6th at 6:30pm on Channel 10 in Fairfax County on Cox and Verizon, and on Comcast in Reston only.

For more information, contact Shelli Carpenter, Marshall Academy Career Experience Specialist at smcarpenter@fcps.edu or 703.714.5581 or Lisa Huffman, Tysons Regional Chamber of Commerce President at 703.281.1333.

Cosmetology Host "Friends & Family" Event

Cosmetology-- Level I & Level II students hosted a "Friends & Family" Event on Saturday, Nov. 17, 2012 from 8:00am – 1:00pm. Students invited friends, family, teachers, neighbors, and others to perform hair & nail care services on what they have learned in class so far. Services included shampooing, deep conditioning treatments, blow dry styling, haircutting, hair color, highlights & lowlights, roller sets, manicures, and nail art. Students served their guests breakfast food items while they performed their services. The event was a success as student raised $401.00.

Donate Your Vehicle to Student Auto Sales

The Student Auto Sales program at Marshall High School Academy is seeking your tax deductible vehicle donation. If you have a vehicle you would like to donate, please contact Joe Scango at 703-714-5526 (o) or 703-220-3515 (c) or joseph.scango@fcps.edu to make arrangements. Donations are 100% tax deductible. 75% of the money goes right back to the auto programs and 25% pays for dealer tags, forms, and administrative expenses.

STUDENT SPOTLIGHT:

Kevin H.

Kevin H. is know for his mature, meticulous and responsible character. He has the ability to communicate and work side-by-side with peers as well as adults. Describing himself as "persistent", this can be proven by his success with his leadership as a Cyber Patriot Captain. His team has made it to Nationals for the second year in a row.

Kevin is also a board member of the NBHS (National Business honor society), Kevin continues to challenge himself and work hard. He interned with Northrup Grumman over the summer assisting with cloud computing and penetration testing as well as participated in the Cyber Patriot camp this summer. He plans to work at the Microsoft Store this year and will continue playing Lacrosse for Marshall.

MARSHALL ACADEMY

7731 Leesburg Pike
Falls Church VA 22043
(703) 714-5582
www.fcps.edu/marshallacademy/

Questions can be directed to Sanaa Itayem, Marshall Academy ESOL Support Instructor @ Sanaa.Itayem@fcps.edu.

No student in Fairfax County Public Schools shall on the basis of race, color, sex (including sexual harassment, Title IX, and pregnancy), marital status, religion, national origin, age (40 or older), disability, or genetic information be excluded from or denied enrollment in any academic activity or course. The director of the Office of Equity and Compliance has been designated to handle inquiries and complaints regarding **nondiscrimination** policies to include those covered under Title IX and can be reached at 571-423-3050. For concerns regarding compliance under Section 504 of the Rehabilitation Act of 1973, please contact the coordinator **Due Process and Eligibility** at 703-317-3030.

UPCOMING EVENTS:

February 8th	Chinese New Year Celebration
February 11th & 28th	Academy International Days
February 14th	Cosmetology Valentine's Extravaganza
February 20th	Marshall Academy Open House
March 21st	Criminal Justice Career Fair

MARSHALL ACADEMY AND HIGH SCHOOL SHUTTLE SCHEDULE 2012-2013 (UPDATED 1/7/13)

	Base to Marshall Academy		Marshall Academy to Base	
SCHOOL	SHUTTLE	DEPART	SHUTTLE	DEPART
AM SHUTTLES				
Cedar lane	------	-----	3106	8:50
Falls Church	2000	7:05	2118	8:50
Langley	4001	7:05	4101	8:50
Madison	Special	7:05	3106	8:50
McLean	4000	7:10	4103	8:50

HOTEL (Edwards)	Red Thursdays/Fridays	#4001	Lv Marshall 7:35 to Marriott
		#4202	Lv Marriott at 10:40
	Blue Thursdays/Fridays	# 4001	Lv Marshall 7:35 to Sheraton
		#4202	Lv Sheraton at 10:20
HOTEL (Devlin)	Thursday & Friday	#4101	Lv Marshall 9:30 to Sheraton
		#4231	Lv Sheraton 12:40 to Marshall

MID-DAY SHUTTLES				
Cedar Lane	3114	9:10	3205	10:50
Falls Church	2119	9:00	2214	10:50
Langley	4101	9:10	4208	10:50
Madison	3114	9:00	3205	10:50
McLean	4103	9:07	4205	10:50
Oakton	3125	9:05	3205	10:50
Stuart	2110	9:00	2215	10:40
Accotink Academy	Bus 919			
PM SHUTTLES				
Cedar lane	3216	11:20	3228	12:50
Falls Church	4211	11:05	2304	12:50
Langley	No Shuttle		4231	12:50
Madison	3216	11:00	3228	12:50
McLean	4205	11:10	4231	12:50
Oakton	3216	11:07	3228	12:50
Stuart			2306	12:50
Oak Valley	4207	11:00	3228	12:50

MARSHALL HIGH SCHOOL ONLY SHUTTLES

CHANTILLY #4113 Leaves at 9:00
Classroom-on-the-Mall #4123 9:20
FALLS CHURCH ACADEMY # 4119 9:10
Falls Church Academy #4211 11:15
No shuttles to Fairfax Academy

Return #411 Leaves Chantilly 10:50
Return # 4204 Leaves Mall at 10:45
Return # 4211 Leave FC 11:00
Return #4300 Leave FC 1:10

Marshall Academy Website: http://www.fcps.edu/marshallacademy/
Academy Office / Attendance Line: 703-714-5582

Services for Students

Shelli M. Carpenter

Career Experience Specialist
Phone: 703.714.4481 Fax: 703.714.5681
Email: SMCarpenter@fcps.edu
Meetings by appointment

Career Services include: Career and Field Experiences, Individualized Career Counseling & Planning, Internships, Job Shadowing, Resume Writing Workshops, Life & professional skills, Career Fairs, Career Speakers, Mentoring, Business Partnerships, Financial Aid & Scholarships, Academy Ambassadors, Community Service Learning and more.

Niki Haubner

School Counselor
Phone: 703.714.5594 Fax: 703.714.5681
Email: Nicole.rosetthaubner@fcps.edu
Meetings by appointment

As an academy counselor, it is my mission to empower students to pursue highly specialized, technical, and academic opportunities. Through collaboration and communication with base school counselors, parents/guardians, and academy staff I provide comprehensive, data-driven counseling services in the personal, social, academic, college and career domains.

School Counseling Services include: Personal, Social, Academic, College & Career Counseling, Goal Setting, Academy Events, Academy Admissions, Community Outreach, Marketing, Academy Ambassadors

Academy Support Team

What are Academy Support Teams?
The Academy Support Teams are special education resource teams assigned to each of the Fairfax County High School Academies. The mission of the support team is to provide assistance necessary to enable students with special needs to successfully participate in Academy classes. Team members meet with each student to discuss needed accommodations, plan classroom supports, and provide assistance with transition planning. The support teams work closely with Academy instructors and administrators, high school special education departments, and Career and Transition Programs personnel to achieve their goals.

Who can benefit from Academy Support Team services?
The support teams serve students with special needs who attend High School Academies. Students from FCPS high schools are eligible to enroll in Academy courses. Some technical courses recommend prerequisite coursework and entail technical vocabulary and advanced problem solving skills. Students with a high degree of interest in the subject area and the ability to work independently are likely to be successful in this inclusive setting.

What can students learn at Academies?
Academy programs equip students with valued technical knowledge and skills through meaningful and relevant learning opportunities. Rigorous industry and academic standards, technology, and employment competencies are integrated to prepare students for higher education and various careers. Students have the opportunity to participate in community based internships, receive college credit as well as industry certifications upon successful completion of certain Academy classes, and possibly be eligible for scholarship funds to be used for post-secondary education in related fields of study.

What supports do Academy Support Teams provide?

The support teams address the needs of students by providing direct academic support to students, technical support to Academy instructors, and by acting as liaisons to the special education departments at students' base schools and to other Career and Transition programs. Accommodations are based on the individual needs of each student. Examples include:

- Individual and small group instruction
- Instruction in organization and study skills
- Individual test administration
- Review instructional materials
- Behavioral support plans
- Advocacy
- Transition planning and post-secondary linkages

For more information visit an academy website or contact a support team member.

Chantilly Academy Support Team	**http://www.fcps.edu/ChantillyAcademy/**	**Julie Dixon - 703-227-3042**
Edison Academy Support Team	**http://www.fcps.edu/EdisonAcademy/**	**Maggie Devine – 703-924-8122**
Fairfax Academy Support Team	**http://www.fcps.edu/FairfaxAcademy/**	**Pete Datoc – 703-219-2249**
Falls Church Academy	**http://www.fcps.edu/FallsChurchHS/**	**Lynda Vincent – 703-207-4036**
Marshall Academy Support Team	**http://www.fcps.edu/MarshallAcademy/**	**Helen Schaefer – 703-714-5576**
West Potomac Support Team	**http://www.fcps.edu/WestPotomacHS/**	**Jamila Jeeter – 703-718-2656**

Career and Transition Services
OPTIONS FOR LIFE

Fairfax County Public Schools
March, 2010
No student, employee, or applicant for employment in Fairfax County Public Schools shall, on the basis of race, color, sex, religion, national origin, marital status, or disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity

Appendix D:
GCM Bell Schedule

George C. Marshall High School

Bell Schedule 2012-13

		Monday-Tuesday-Thursday-Friday Non-Collaboration			Wednesday Collaboration		
		Start Time	End Time	Minutes	Start Time	End Time	Minutes
Collaboration					7:00 AM	8:00 AM	60
1st Block (1) RED		7:20 AM	8:51 AM	91	8:00 AM	9:30 AM	90
(2) BLUE		7:20 AM	8:51 AM	91	8:00 AM	9:30 AM	90
Learn		8:51 AM	9:36 AM	45			
2nd Block (3) RED		9:36 AM	11:07 AM	91	9:37 AM	11:07 AM	90
(4) BLUE		9:36 AM	11:07 AM	91	9:37 AM	11:07 AM	90
3rd Block (5) RED (6) BLUE	A Lunch	11:07 AM	11:37 AM	30	11:07 AM	11:37 AM	30
	A Class	11:37 AM	1:16 PM	99	11:37 AM	1:17 PM	100
	B Class	11:14 AM	11:59 AM	45	11:14 AM	11:59 AM	45
	B Lunch	11:59 AM	12:29 PM	30	11:59 AM	12:29 PM	30
	B Class	12:29 PM	1:16 PM	47	12:29 PM	1:17 PM	48
	C Class	11:14 AM	12:53 PM	99	11:14 AM	12:54 PM	100
	C Lunch	12:53 PM	1:23 PM	30	12:54 PM	1:24 PM	30
4th Block Embedded (7)		1:23 PM	2:10 PM	47	1:24 PM	2:10 PM	46

Appendix E:

Recruitment and Promotional Events

Explore Marshall Academy!

Wednesday, February 20th 2013

7:30-11am
A Taste of Marshall Academy for Parents & Students

Please join us here at Marshall Academy for an opportunity to sit in on our classes to learn firsthand what sets Marshall Academy classes apart from other elective options! Feel free to join us for one session, two sessions, or stay for the whole morning.

** Please note that the morning of February 20th is a special opportunity for parents to visit our classes. Parents, please feel free to bring your prospective Marshall Academy student with you. Regular class visits for students are available on Wednesdays and Thursdays from January 4th – March 21st (please see your high school counselor to schedule a student visit)*

***Current Marshall Academy Parents, please keep in mind this is an open house geared toward answering general course questions for students/parents hoping to register for the 2013-14 school year. Please feel free to come and observe, however if you have questions about your student's current class, please contact the teacher directly.*

Schedule:

On-Site Registration: 7:30am-9:45am

On-site registration is available in the front lobby of Marshall High School. Please feel free to park anywhere in the parking lot in front of the school (enter Marshall HS parking lot from George C. Marshall Drive – no access from the Route 7 entrance). As long as you arrive after 7:20am and leave by NOON, you may park 2 cars each in the bus lanes.

Session 1: 7:45-8:45am: AM Block Classes

Select One, Two, or Three classes to observe from the following: Aerospace Science, Auto Collision, Auto Technology, Chinese (2 – Ms. Lei), Computer Systems Technology A+, Cosmetology, Criminal Justice, Culinary Arts, Hotel Marketing, and Network Administration.

Session 2: 8:50-9:30am: Academy Welcome

Sit in on a student panel to hear the impact Marshall Academy has on our students

Session 3: 9:40-10:40am: Mid Block Classes

Select One, Two, or Three classes to observe from the following: Aerospace Science, Auto Collision, Auto Technology, Chinese (4 – Dr. Fu), Computer Systems Technology A+, Cosmetology, Criminal Justice, Culinary Arts, Entrepreneurship, Hotel Marketing, and Network Administration.

5:30-7:00pm
Open House and Spaghetti Dinner (Marshall High School Cafeteria)

Please join us here at Marshall Academy for an opportunity to speak with our teachers and learn more about the classes we offer. Please arrive between 5:30-6:15pm to enjoy a complementary spaghetti dinner!

Contact Niki Haubner at 703-714-5594 / Nicole.rosetthaubner@fcps.edu for more information

MARSHALL ACADEMY INTERNATIONAL DAY

SPECIAL VISITATION DAYS DESIGNATED TO CATER TO ESOL STUDENTS

Students will Experience Marshall Academy Classes in Action:

Monday, February 11, 2013- Rising ESOL Levels 1 & 2

Thursday, February 28, 2013 –Rising ESOL Levels 3 &4

Recommendations:

Rising ESOL 1

Auto Collision Repair

Rising ESOL 2

Criminal Justice

Hotel Marketing

Culinary Arts

Computer Systems Technology

Cisco Healthcare Technology

Network Administration

Rising ESOL 3

Auto Technology

Entrepreneurship

Cosmetology

Aerospace Science

Chinese

If students are unable to attend on the designated day, they are welcome to visit anytime on a Wednesday or Thursday during the visiting window, February 4th-March 22nd.

MARSHALL ACADEMY

No student in Fairfax County Public Schools shall on the basis of race, color, sex (including sexual harassment, Title IX, and pregnancy), marital status, religion, national origin, age (40 or older), disability, or genetic information be excluded from or denied enrollment in any academic activity or course. The director of the Office of Equity and Compliance has been designated to handle inquiries and complaints regarding nondiscrimination policies to include those covered under Title IX and can be reached at 571-423-3050. For concerns regarding compliance under Section 504 of the Rehabilitation Act of 1973, please contact the coordinator Due Process and Eligibility at 703-317-3030.

Marshall Academy Student Visitor Pass (No Shuttle)

Visits provide students the opportunity to experience the class first-hand, learn about course requirements and expectations from the teacher, and see all that Marshall Academy has to offer.

When you arrive at Marshall Academy, please check into the Academy Office (enter at door 9 and the academy office is on your right) and we will escort you to class and answer any questions you have!

Name of Student: _____ **Student ID:** _____

Date to Visit: _____ **Class to Visit:** _____

Class Time to Visit (Circle One): AM Block Mid Block (Circle One): Odd Day Even Day

I would like to visit a 2nd class at the same time (write in course name): _____

Visit us on Wednesdays or Thursdays during the AM or MID Blocks from February 6th – March 21st:

AM Block 7:20 – 8:50am (1st & 2nd periods)	Mid Block 9:20 – 10:50am (3rd & 4th periods)

Marshall Academy Courses to visit

Auto Collision	**Auto Technology**	**Chinese**
Computer Systems Technology A+	**Cosmetology**	**Culinary Arts**
Criminal Justice	**Entrepreneurship**	**Network Administration**

****Aerospace Science (Even Days ONLY)** ****Hotel Marketing (Wednesdays ONLY)**

When signed by parent, teacher, and school counselor, this pass will be considered authorization to ride a shuttle bus and will also serve as a permission slip for the purpose of attendance. Good for one block visit.

The above student will be visiting Marshall Academy. She/he would like your permission to miss class in order to participate in this opportunity. All students understand they are responsible for all class assignments.

Class I will Miss: _____ Period: _____ Teacher Signature: _____

Parent Permission: _____ School Counselor Signature: _____

This visit is prearranged through the base school counselor.
Marshall Academy Contact Person: Niki Haubner 703-714-5594 nicole.rosetthaubner@fcps.edu

Please keep this form with you and available for review as you travel to and from Marshall Academy

Parking:

You may park at Marshall as long as you have a parking pass issued by your high school. Enter the parking lot from route 7 and drive around the right side of the school until you get to the student parking lot in the back. Enter the building where you are able and make your way to the Academy Office.

"A Taste of Marshall Academy 2012"

Join us at Marshall Academy on Thursday, December 13th for an opportunity to turn the tables on your students and let them teach you. Spend time on the receiving end of the wonderful skills your students are learning. Join us for just one period or stay for the whole experience!
Course offerings and times available are as follows:

Aerospace Science: Students will explain scientific principles that help planes take off and gliders land safely. No baggage fees or security scans necessary for this educational theory of flight!

Auto Collision: Have you noticed that it's harder to see while driving at night? Visit us for a headlight treatment that will transform those headlights from foggy to fabulous!

Auto Sales: Pimp my ride! Learn how Marshall Academy takes donated cars and turns them into great used vehicles that are auctioned off to benefit future student educational initiatives.

Auto Technology: Your car is a big investment. Checking the fluids regularly helps safeguard against breakdown, mechanical damage, and even possible accidents. Join us for "Know your fluids: Car Talk 101."

Chinese: Chinese is one of the most popular languages in the world. Put your students at ease as they seek to explore this exciting language and culture by learning basic Chinese greetings and expressions.

Computer Systems Technology A+: Has your computer been running slower lately or having a problem? Bring in your personal or work computer for a complete diagnostic and learn tips to ensure it is reaching peak performance. Need something installed? More memory? A new DVD burner? Bring it along and we will install it for you!

Cosmetology: Have a holiday party to go to or just want a fresh look for the weekend? Stop by our salon for a complimentary hand exfoliation & massage. This gender neutral treatment is sure to please!

Criminal Justice: Experience Criminal justice first hand... Learn how to be a good witness to a crime by working with the latest computer based sketch artist technology; let your students help you to improve your shooting accuracy; peek behind the curtain in law enforcement to see what a police officer is doing and thinking if you get pulled over; and learn the best ways to keep you and your family safe!

Culinary Arts: Work with your students as they prepare popular holiday hor d'oeuvres that will inspire and delight your taste buds!

Entrepreneurship: How do you make sure customers shop at your business? Join the Entrepreneurship students in learning about market research and how information is used to make "sweet" product decisions. Be ready to interact with our entrepreneurs and see if your choices make a profit!

Hotel Marketing: Step behind the scenes to witness a hotel in action! Shadow students at the Tyson's Marriott as they provide a tour with tips on what they are learning in departments such as Accounting, Food & Beverage Operations, Engineering, Front desk, Housekeeping, Reservations and Sales & Marketing. And, don't leave the hotel without learning the insider's trick to getting great rates!

Network Administration: CIA, FBI, NSA, and FCPS...how do these organizations track their own internal employees' computer usage? Come find out in Network Administration! You will perform the same hands-on step by step techniques that a Network Administrator would perform while working in one of these organizations. You will also learn about computer protection, Network and Cyber security, and ways to hack and prevent hackers on computer networks!

Choose the time that works best for you.
Drive your car or ride the shuttle with your students!

Recertification points awarded: 1 Block (1.5 pts) or the whole experience (5 pts)

Pick just one block or stay for the whole experience!

AM Block: 7:20-8:50 Mid-Day Block: 9:20-10:50

Schedule

7:20-8:50: AM Block: First set of courses

8:50-9:20: Join us in the 5 Star Café for coffee, scones and an inside look at Marshall Academy.

9:20-10:50: Mid-Day Block: Second set of courses

10:50-11:15: Tour the academy

11:20–12:00: Lunch provided by Marshall Academy's Culinary Arts Program

11:30–12:00: Marshall Academy Student Panel – hear about the advantages offered at Marshall Academy directly from the students

Course Pairings: NEW THIS YEAR! Each block will be split into two sections. You will spend the first half of the block in one class and then rotate to the second class. Please select the sets of courses you are most interested in participating.

- Criminal Justice / Network Administration
- Culinary Arts / Computer Systems Technology A+
- Aerospace Science / Entrepreneurship
- Chinese / Cosmetology
- Auto Technology / Auto Collision / Auto Sales
- Hotel Marketing (offered only AM block – you will spend the entire block with the Hotel Marketing class students at the Marriott)

A Taste of Marshall Academy

Registration Form

***** Please fill this form out on your computer and then click the SUBMIT button in the top right corner of your screen. It will automatically be sent through outlook. If you are having trouble, please feel free to print and fax to Niki Haubner at 703.714.5681*****

Name: _____

Title: _____

High School: _____

Please place a check next to the set of courses you would like to participate in. (Check one set if you are staying for just one block or two sets if you are staying for the entire program)

- ☐ Criminal Justice / Network Administration
- ☐ Culinary Arts / Computer Systems Technology A+
- ☐ Aerospace Science / Entrepreneurship
- ☐ Chinese / Cosmetology
- ☐ Auto Technology / Auto Collision / Auto Sales
- ☐ Hotel Marketing (offered only AM block – you will spend the entire block in the class with students at the Marriott)

I plan on participating in the following activities (please place a check next to all that apply)

- ☐ 7:20-8:50 AM Block: First set of courses
- ☐ 8:50-9:20 5 Star Café Welcome
- ☐ 9:20-10:50 Mid-Day Block: Second set of courses
- ☐ 10:50-12:00 Academy Tour / Lunch / Student Panel

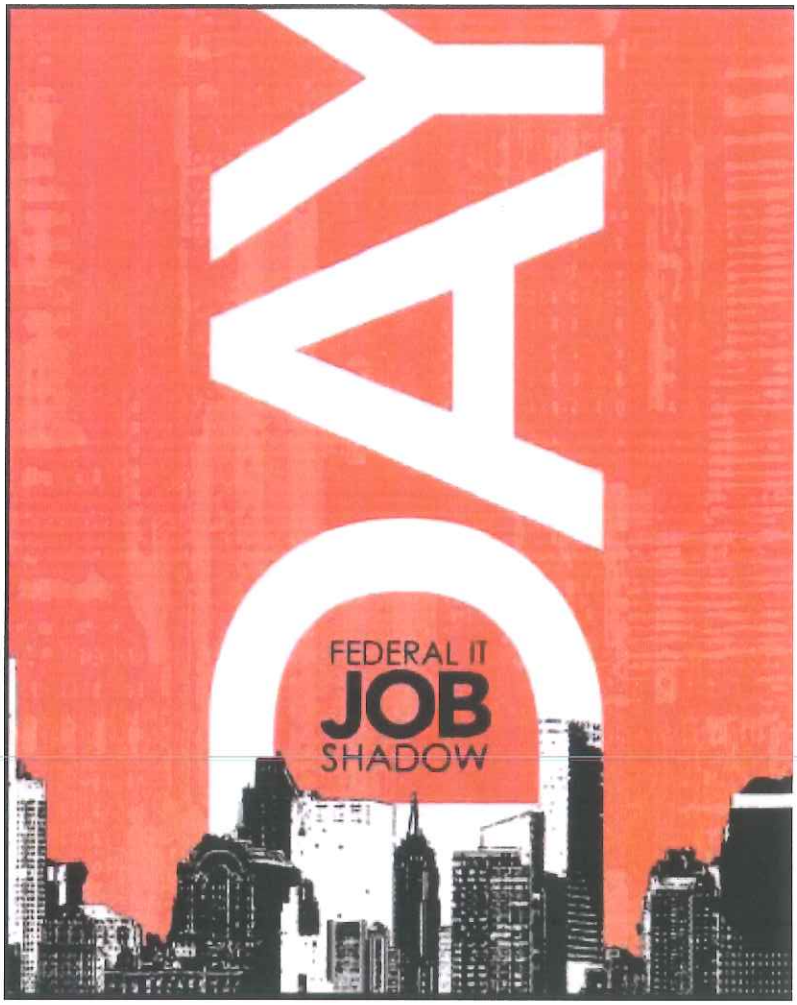
Recertification points will be awarded through MyPLT. Once you submit this registration form, you will be provided a course code to register online.

Please email, fax or pony your completed registration form to Niki Haubner at Marshall Academy by* **December 7th**.
Information on parking, schedules, etc. will be sent to you by December 11th.

Nicole.rosetthaubner@fcps.edu
Fax: 703-714-5681

** I am on maternity leave until December 3rd. If you have any questions, feel free to send me an email and I will get back to you as soon as possible! - Niki*

Appendix F:
Career Experiences



Students from Marshall Academy's Network Administration and Computer Systems Technology A+ courses had the opportunity to participate in the Federal IT Job Shadow Day. Students visited and shadowed professionals at the Department of Defense Education Activity and the Department of Veterans Affairs.

Department of Education Activity (DoDEA) – Feb. 27th

On February 27th, Computer Systems A+ and Network Administration students participated in the Department of Education Activity's (DoDEA) first annual IT Job Shadow Day. DoDEA operates over 180 schools throughout the world for military members' families. This is the second year DoDEA has hosted Marshall Academy. Students were welcomed by DoDEA's Director, Marilee Fitzgerald, they toured the headquarters including the Communications Department and television studio.

Students also job shadowed with DoDEA's Chief Information Officer (CIO), Jeff Friedler, as well as, the staff from the Network Administration, Information Assurance, Help Desk and Programming Departments.

Department of Veterans Affairs – Feb. 9th

On February 9th, Network Administration students participated in an IT Job Shadow Day at the Department of Veterans Affairs. Students' job shadowed with the Deputy Director of Certification Programs, Director of Quality and Performance, Office of Planning and Programs and Director of Field Operations. Students also participated in panel discussion with former OI&T Interns. The program closed with a workshop focused on Navigating the Federal Government Employment for future internship and employment opportunities.

MITRE

presents

Young Women in Engineering

Friday, March 15, 2013 8:00 a.m. – 2:00 p.m.

McLean, VA

Are you interested in a career in Technology?
Do you want to learn more about the opportunities for women in Technology & Engineering?
If you answered *"yes"* to these questions;
Visit MITRE on Friday, March 15, 2013

Teachers,

Email Cara Kirby (ckkirby@fcps.edu) with the following;

- Student Names
- Citizenship Declared
- Student Email Address
- DEADLINE FOR REGISTRATION: FEBRUARY 18TH

Fairfax County Partners with the Tysons Regional Chamber for Job Shadow Program

Fairfax County Public Schools has partnered with the Tysons Regional Chamber of Commerce to sponsor a Job Shadow Program for high schools within the chamber's district including Madison, Marshall and Oakton High Schools as well as Marshall Academy. During January and February students will job shadow in various fields including business management, operations, cosmetology, IT and finance.

Fairfax Public Access will air a segment on the Job Shadow Program on Vienna Tysons TV. Students who shadowed with Dominion Power and Vital Edge Solutions will be featured. Tune into the segment which will air on Saturday, February 2nd at 9:30pm, Sunday, February 3rd at 6am and Wednesday, February 6th at 6:30pm on Channel 10 in Fairfax County on Cox and Verizon, and on Comcast in Reston only.

For more information, contact Shelli Carpenter, Marshall Academy Career Experience Specialist at smcarpenter@fcps.edu or 703.714.5581 or Lisa Huffman, Tysons Regional Chamber of Commerce President at 703.281.1333.

Marshall Academy's 1st Annual IT EXPO

Thursday, May 10th 9:40-11:00am

40 Minute Panel Presentation followed by 2-10 Minute Breakout Sessions

Panelists / Break-out Session Presenters

	Name / Title	Company	Job Description
1	Sharon Caraballo Assoc. Dean Undergrad Programs, Volgenau School of Engineering **Break-Out Session Only*	George Mason University	I oversee all of the undergraduate programs in the engineering school, including eight majors in the areas of information technology, computer science, and engineering.
2	Ryan Garvey Sr. Mgr. Physical Security *MHS Class of '94*	Living Social	I run the Global Physical Security program for LivingSocial. I am responsible for over 5000 employees in 26 countries around the Globe.
3	Ali Khraibani Jr. Security Analyst, Enterprise Risk Consultant *Marshall Academy Network Admin graduate*	Deloitte & Touche	I recently completed my contract as a Junior Security Analyst for WaveGard Inc. and soon will complete my part-time temporary position as a network administrator. I have monitored networks and performed penetration testing to ensure that servers are compliant to federal regulations.
4	Diane Miller Director of Operations, Cybersecurity Group	Northrop Grumman	Responsible for developing innovative growth strategies, fostering corporate collaboration, and demonstrating thought leadership internally and externally.
5	Nancy Moy Web Development Specialist	FCPS	I am responsible for coordinating the content of the FCPS web sites, providing tech support to school webmasters, and database administration.
6	Diane Murphy Professor of Information Technology	Marymount University	Teach classes at the undergraduate and graduate level in a variety of IT topic including Web development, database development, software testing.
7	Cashielle Nelson Admissions & Outreach Manager **Break-Out Session Only*	Year Up	Year Up is a one year long job readiness program designed to train young adults for a career in a specialized field. It consists of six months of IT and professional skills training, coupled with hands on experience by means of a six months paid internship with one of our corporate partners.
8	Joseph Parker President / CEO	In2STEM Solutions	Our goal is to demonstrate how STEM careers and education can be fun and rewarding as well as the key to changing our lives in the future.
9	Daniel Perez Deputy Chief Information Officer	DODEA	Assist the Chief Information Officer in the strategic management and direction of all IT programs and policies for the DoDEA.
10	Rinaldi Rampen Director of Security *MHS Class of '94*	Living Social	Responsible for all things security at LivingSocial. I currently lead the Global Security Program in the areas of Governance Risk & Compliance, and Application, IT and Physical Security.
11	Vee Sum Sr. Assoc. Agent & IT Support *Marshall Academy Network Admin graduate*	Bob Pierce Insurance	Senior agent for auto home life and health insurance. IT Support for the office including all workstations hardware software and network support. Maintain Voice over IP phone system.
12	Ryan Walters Chief Cyber Architect *Marshall Academy CyberPatriot Coach*	Northrop Grumman	Review all Cyber for all external contracts. Secure our datacenters from malicious attacks. Work with Federal agencies to prevent attacks. Train the next generation of Cyber Defenders.

Questions for Panelists

1. Have you always known that you wanted to work in IT? and What was the first job you had in the IT industry?
2. What is your favorite part of your job and the hardest thing about your job?
3. What was the most important step to get you to where you are today?
4. What classes/training/education did you pursue to reach your current position and was it worth it?
5. Which certifications have you found to be the most valuable to you? Have they benefited you in the interview process?
6. Do you enjoy your job?
7. Any last words of advice for our aspiring IT professionals?

Student Feedback

Marshall Academy Computer Systems Technology A+ and Network Administration students attended (~50 students)

Overall, did you find this experience valuable?
100% of students responded YES!

How will you use what you learned today to help you prepare for your future?

"I am going to take the proper courses which will eventually lead me to a path of success. I learned the path may not be perfect but that I have to take advantage of every opportunity presented"

"Always move forward"

"I will take hold of any job opportunities that come my way. I will also take certifications in my job field and I will continue to pursue my career by taking the right classes in school"

"I learned to get involved in school, join study groups, etc."

"Do more work, don't ever stop learning"

"I learned how talking to people out in the field is always important"

"Make a plan for my future"

"Understand what I would need to do in order to help myself in the IT field"

"I was able to ask what colleges would be good to attend for entering the IT Field"

"I learned better interview conduct, career paths, and certification choices"

"For motivation"

"Plan and learn what are the best career paths and classes to take"

"I know what steps I can take to separate myself from the competition and get a job"

"Work hard and don't stop"

for more information
go to ***www.girlsinict.org***

girlsinict@itu.int

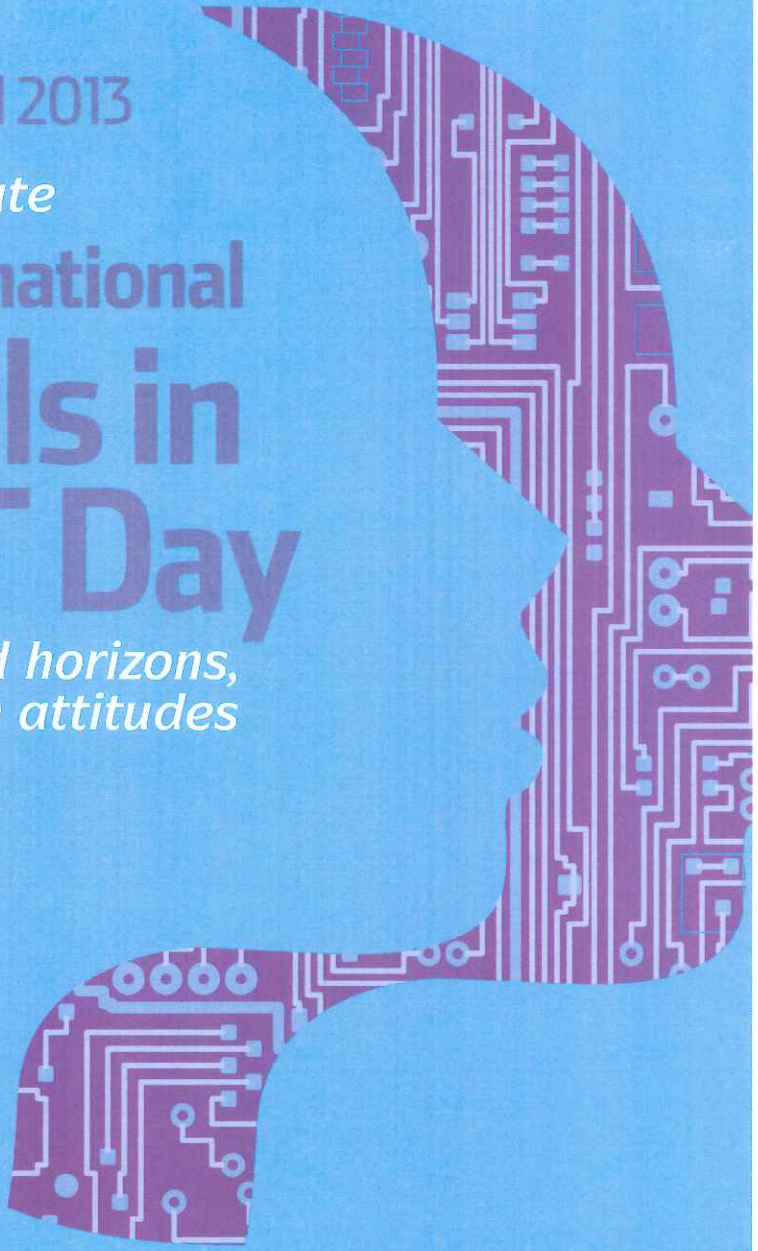
International Telecommunication Union,
Place des Nations, Geneva, Switzerland

25 April 2013

Celebrate

International Girls in ICT Day

Expand horizons, change attitudes



Committed to
Connecting the World

What is International Girls in ICT Day?

International Girls' in ICT Day is an initiative backed by ITU Member States in Plenipotentiary Resolution 70 (Guadalajara, 2010) to create a global environment that empowers and encourages girls and young women to consider careers in the growing field of information and communication technologies (ICTs). International Girls in ICT Day is celebrated on the 4th Thursday in April every year. **International Girls in ICT day will next be observed on 25 April 2013.**

Who organizes Girls in ICT Day events?

Ministries of ICT, Education, Labour, Youth, National ICT Regulatory Authorities, ICT companies, academic institutions, relevant UN agencies, NGOs and other stakeholders are encouraged to organize Girls in ICT day events on 25 April 2013. The ITU Secretary General invites all ITU Member States and Sector Members to organize events attracting as many girls and young women as possible.

Please contact ITU at **girlsinict@itu.int** for further information and coordination if you're planning to celebrate Girls in ICT Day in 2013. The ITU Girls in ICT Portal has many useful resources for event organizers at **www.girlsinict.org**. The Girls in ICT Portal also includes over 500 programs to support young women and girls to prepare for and enter a career in ICTs.

How to organize Girls in ICT Day events?

There's a lot of experience to build upon. In 2012, Girls in ICT Day organizers from around the world found new and innovative ways to celebrate, raise awareness about the opportunities of the ICT sector and empower girls and young women with the knowledge that careers in ICT can be for them. All stakeholders created their own events, tailored to fit their needs and means, most involving from 20 to 500 girls. One country held over a thousand events nation-wide, made possible through widespread, high-level government support and public-private funding. In total, nearly 90 countries organized events empowering more than 30,000 girls worldwide.

Why don't we try to reach even more girls and young women on International Girls in ICT Day 2013? Some countries may wish to organize nation-wide events, whether in schools or ICT companies. Others may wish to hold a series of regional events, while some may organize their country's first-ever Girls in ICT Day event.

The goal is to invite teenage girls and university students to fun and instructive "open days" at the office of ICT companies, other companies with ICT departments, ICT training facilities, universities, research centers, government bodies, and all ICT-related institutions where girls can see for themselves what a career in the field might bring, freely ask questions, and meet women role models. Another approach is to invite speakers to take part in "women in ICT career days" at local schools. ITU recommends that teachers and career advisers, who are often not aware of the opportunities offered by the ICT sector, be invited as well so they become better informed about the possibilities of ICT careers. Inviting successful women to speak about their experiences, especially showcasing creative ICT careers, as well as running contests, offering prizes and awards, or giving girls "hands on" experiences are examples of how to make the event more appealing. Other ideas are to organize career fairs or mentoring and shadowing programmes (where girls shadow a woman leader in ICT for one or several days).

Stakeholders organizing an event are encouraged to:

- Take pictures and make videos of their events
- Create a website and post photos of the activities
- Build up momentum for their activities by advertising them on social networks.
- Use the Facebook page of ITU Tech Needs Girls (http://www.facebook.com/TechNeedsGirls) and Twitter with #GirlsinICT to advertise
- Conduct follow-up surveys with the participants
- Write up information about the experience and share it with the community

Still need inspiration? Please check out the ITU Girls in ICT Portal. There you'll find photos, videos, contact details for event organizers and other information showcasing the variety of Girls in ICT Day events held in 2012 **(http://girlsinict.org/girls-in-ict-day-events)**. A more detailed description can be read in the ITU News magazine (https://itunews.itu.int/En/2593-The-world-celebrates-Girls-in-ICT-Day.note.aspx). The Girls in ICT Portal also has banners, electronic widgets and logos you can download to use in events along with video messages from the ITU Secretary General and Director of the Telecommunication Development Bureau, a Girls in ICT Day toolkit and follow up surveys. The Girls in ICT team invites you to tell us about your plans for International Girls in ICT Day. Please also feel free to contact us for advice or more information. Just send an email to **girlsinict@itu.int** and we will get back to you.

Why do we need a Girls in ICT Day?

Globally, it is estimated that the world shortfall in skilled ICT professionals exceeds two million.

Despite the obvious benefits, many girls never even consider a career in ICTs.

The ICT sector remains a growing sector for employment, and a key economic factor underpinning both national and international development in both developed and developing countries. Many countries and regions are predicting a shortage of qualified staff with math, science, engineering and computing skills to meet the growing demand.

At the same time, many companies are looking to increase the number of women in the sector.

This means that highly qualified women in technical fields have significant opportunities available to them in both developed and developing countries. The need for qualified professionals in developing countries worldwide should come as no surprise, considering the rate of ICT growth in developing countries. The BDT **Thematic Report: A Bright Future in ICTs: Opportunities for a New Generation of Women** includes more information **(http://girlsinict.org/trends-analysis-and-profiles/bright-future-icts-opportunities-new-generation-women)**

SPONSORS

Return to Conferences & Events > ATCA 58th Annual Conference & Exposition

Schedule of Events

ATCA 57th Annual Conference and Expositic
Gaylord National Harbor
National Harbor, Maryland
October 1 - 3, 2012

Thank you to this years ATCA Annual Conference Committee:

Committee Chair: Pat Forrey, Forrey Associates,
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David Schroeder, DoD
Eric McKinley, Accenture
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Mary-Claire Burick, Evans Incorporated
Stephanie Fraser, Covell Solutions

Agenda

Student Coverage of the 57th ATCA Annual Conference and Exposition

Transportation Times

National Harbor, Md October 3, 2012

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Having Fun at ATCA 15

Our Motto:
Good | Better | Best
We will not rest until Good is Better, and our Better is Best

Shakiera Begett interviews an aviation professional about the types of jobs that are offered in the fields of science and technology. (Photo: Rising Star Academy)

Learning About Aerospace Careers

GETTING THE HANG OF IT: A confident student "pilots" himself out of a situation in front of onlookers. (Photo: DOT)

By Gauri Sharma
George C. Marshall High School

During the Air Traffic Control Association conference, I had a wonderful opportunity to interview experienced employees from different companies as well as military soldiers.

From each interview, I learned something new either about how that particular company regulates or how important education is to be successful in the job you have.

As Matthew Bolden, the company exhibitor of Boeing, said, "even though you might have a major in a subject and are working at a good position in a well-known company, you will still feel the need to study, learn and get more education."

This gives a majority of us an idea of how important education has become nowadays, in order to have a complete understanding about the work you do and how you do it. However, experience is also one of the important elements for one to succeed in their job.

For example, Director of Lockheed Martin Bob Bitzbezer has been in the field of aerodynamics for 40 years. He owned two

Story continues on Page 13

Connecting the 'DOTs' for Aviation

By Nathan Bender
Lake Braddock Secondary School

This field trip provided learning opportunities from the minute we walked into the exhibit hall. It was like shock and awe with all the huge and impressive exhibits, flight simulators and technology on display in the room. There were also the standard convention giveaways from each company, but the glow sticks took the prize for lighting up the day.

I immediately felt the anticipation and excitement in the halls of the hotel filled with 1,000 students from across Virginia, Maryland and the District of Columbia. The escalators, elevators and stairs were alive with enthusiasm from teachers directing their students. Within moments of

Story continues on Page 14

From the Front Page: Learning About Aerospace Careers

companies of his own and then became the Director of Lockheed Martin. His advice to the young generation is "to be willing of what you want to do, have an ambition, spend as much time as you need to understand the work you do, and certainly know that there is no easy way out."

Bitzbezer also explained with great details the connection between small businesses, average companies and big companies. He said, "get the most amount of education that you can receive, and then work in a big company to get trained. After awhile, switch out to work in a small company to gain a sense about business, and maybe for a little while work in an average company to learn about management. Finally, when you think you are ready, start a company of your own."

Having a lot of knowledge about what you are expected to do at work and experience in a job field as a team strengthens a company. For example, Lockheed Martin is a successful aviation company that works as a team and converges multiple systems into one, making the communicating system overall easier and smaller.

As the Lockheed Martin company exhibitor explained, "Lockheed Martin uses ERAM (En Route Automation Modernization), a system that links a bunch of systems together." For example, each branch has multiple types of jobs under it, such as terminal controllers lie under the traffic controllers, which is abroad view of one of the systems.

The main purpose of this conference was to acknowledge the progress attained in the field of aerodynamics since the past few decades and focus on a set of policies, regulations and ideas that can enhance our flight environment and prevent any safety or health risks from arising.

Students of different grade levels attended this field trip and represented their schools. Many students enjoyed the conference program, visited different booths, interviewed company exhibitors, and learned fascinating things about aircraft and the aviation system. There were students from military schools who attended the conference to learn in more depth about the air traffic control systems and new aircraft models designed by individual companies.

I had a marvelous experience interviewing employees who work in different companies and knowing their point of views on aircrafts and the aviation system. Also, this event made me realize how important education is to succeed in not just work but in school as well, and the benefit of having a lot of experience in your work can lead you to be grateful toward your work. It also revealed to me a set of jobs in the field of aerospace.

A student learns about how an air traffic control communications system works by "plugging in" like a controller working an operational position would. (Photo: DOT)

The Best Field Trip Ever

By William French
George C. Marshall High School

The ATCA conference was the best field trip I have ever experienced.

When I arrived at the conference, two very nice members of the military helped us out of the bus and handed us each complimentary conference bags. When we entered the beautiful hotel, I was handed a "Press Pass" lanyard and proceeded to explore the many exhibits and displays. I couldn't believe that I was actually missing school to go to a conference that had unlimited information about air traffic control technology and aviation, subjects that I'm very interested.

I stepped inside the conference center and immediately noticed how huge it was. I saw a Delta plane supported by blue LED lights, and a large tent that had the famous signature Lockheed Martin logo printed across the very top — I was in aeronautics heaven!

At first, we were escorted by military chaperones to the various company displays. I, of course, collected as much free stuff as I could. It was pretty hard to resist. However, I eventually separated from the group to interview people and gain more knowledge about the companies represented here.

I will admit that the first person I had interviewed provided some very technical information that I

Story continues on Page 11

TEACHER TESTIMONIAL

"My science students enjoyed meting and exploring new ideas from the many learned representatives that were in attendance. I especially appreciated the special attention given to our group from our military chaperone, Kelly. She discussed at length the opportunities available in aviation with several of the girls in my Physical Science class. The girls left encouraged, feeling that this was a field of science that was open to them and attainable! They have already started making plans for the things that they want to accomplish in high school and beyond. One student is even considering jointing the Civil Air Patrol!"

- Mary Lopez
Evangel Christian School

ATCA: Extremely Fun, Educational

By Connor Babcock
Jenifer Elementary School

The ATCA event was extremely fun. There were many stands around the room, and some of these stand even had games.

One of the most entertaining and informational stands was the Communication Support Team, CST, of the FAA. They had a vehicle that could contact thousands of planes all around it. It even knows how many planes are flying over America at any given moment. This vehicle can have 18 people running it. 9-11-11 was a major event that helped the government see a need for a vehicle like this.

The vehicle knew where almost 10,000 planes were. It picks up a transmission in a number sequence to show where they are. If a plane makes a code 7700, that means they are in distress. This code occurred while we were at the station. A plane in Idaho had the code. He turned it off at 11:01.

Another amazing stand was the UFA stand. At this stand you could participate in a mock air traffic controller simulation. It is much safer to perfect a controller's skill on the simulator before they try the real thing. To become an air traffic controller, you need to be a good all-around student and be able to work in both day and night time conditions.

My Interesting Experience at ATCA

By Tobias Schneider
George C. Marshall High School

I thought that the Air Traffic Control Association's annual convention was an interesting experience because I was able to learn more about the technology behind air traffic control, the actual process of air traffic control in general and recent advances in air traffic control technology from the top companies in the industry. Companies that I enjoyed talking to were Boeing, Lockheed Martin, Raytheon, Sennheiser, General Dynamics and ARINC.

I enjoyed talking to the Raytheon representatives about their new compact server system, their weather monitoring system and their new touch screen technology for their air traffic verification system. I also talked to Boeing and ARINC representatives about internship opportunities.

This field trip inspired me to go into the field of electrical engineering, because I spoke to actual electrical engineers, and I thought that their work was very interesting.

Appendix G:

Student Enrichment Opportunities

Welcome to the GCM PTSA Website!

Reminder: If you wish, you can log in with your username, or your email address (and your password). If you've forgotten your password, click the blue login button and there's a link to have reset instructions sent to you. Click the Register button to create an account on this website. Only registered users can post on this website, and spam is not tolerated.

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Sponsors have donated generously to the PTSA to help support its mission. To become a sponsor, please contact Chris Gardner.

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Thanks for your support of the PTSA and All Night Grad!

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FCPS Sweeps the CyberPatriot Nationals!

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by Administrator
Published on 03-19-2013 10:54 AM

0 Comments

This past weekend, 156 of the best cybersecurity high schoolers in the USA competed at CyberPatriot V - The National High School Cyber Defense Competition. Marshall sent 12 of our best, and their performance was nothing short of amazing! Check these stats:

- Virginia & FCPS were the only state & school district in the entire mid-Atlantic region whose teams made it to the national finals
- Marshall Academy is the only high school to ever have sent more than one team to the national finals - we sent two!
- FCPS is the only school district to ever win all the Open Division medals in the national competition! Chantilly Academy's VOID team took 1st place, Marshall Academy's Flying Bacon team took 2nd place, and Marshall Academy's ___ Invaders team took 3rd place.
- Marshall is the only high school in the country to ever win two sets of medals!

Teams came from Hawaii, California, Texas, Massachusetts, Missouri, Louisiana, New Mexico, South Dakota, Colorado, Ohio, Alabama, and of course, Virginia (all expenses paid!). In addition, two exhibition teams from Canada were brought to try their hand at this intense competition. There were two divisions, the Open Division for public and private high schools, and an All-Service division made up of Army, Navy, Air Force and Marine JROTC, Civil Air Patrol, and Naval Sea Cadet Corps high school students.

In the first 3.5 hour competition event, each team was given ten computer servers (virtual servers) to configure and protect from a team of professional cybersecurity experts from SAIC who were actively attacking each team's servers and trying to gain access, make them crash, and compromise their security. Points were awarded for the teams' success and speed at thwarting attacks. Scoring was set up so that although the scores were visible up to the last 5 minutes of the event, the scores were anonymous so nobody knew which teams had which score.

The second competition event was a high-speed secure network configuration exercise, sponsored by Cisco. Teams were given equipment and tools and tasked with setting up a complete and secure network with multiple computers, servers, routers and switches - all within 1 hour!

On Saturday at the Awards Banquet, all the competitors were lauded and treated to a sumptuous feast and a thrilling awards presentation - it looked and felt like Hollywood's Academy Awards! The two teams from Canada were awarded medals for their participation. Then awards were given to one team in each division for the networking event. With much anticipation and nervous looks from competitors throughout the ballroom, officiators gave out the 3rd, 2nd, and 1st place medals in the All-Service Division first, and finally the 3rd, 2nd, and 1st medals for the Open Division. Marshalls two teams took both 3rd and 2nd place, a first for the competition! Chantilly's team took 1st place and the President's Cup.

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Marshall teams performed beyond all expectations:

2nd place winning team Flying Bacon:

- Team Captain Kevin Houk (senior)
- CJ Gardner (junior)
- Alex Handley (senior)
- Jack Lynch (junior)
- Ramon Enrique Martinez-Diaz (sophomore)
- Peter Morrissey (senior)

3rd place winning team _____ Invaders:

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- Team Captain Jacob Walters (sophomore)
  - Sepehr Ansaripour (junior)
  - Charlie Franks (junior)
  - Xhesi Galanxhi (junior)
  - Peter Marr (junior)
  - Alex Ryan (junior)

Each team member received a medal and a scholarship for college - plus bragging rights as being one of the top high school cybersecurity experts in the USA!

Most of the Marshall Academy Cyber Security Club was on hand for the competition on Friday, to cheer on their two teams and to gain an appreciation for what it feels like to be in a national competition - something they all aspire to:

For the 2013 CyberPatriot V competition, Marshall fielded three teams - and two made it to the national Finals. For next year, we hope to field at least six teams, and do even better at CyberPatriot VI!

Some press releases:

- http://www.washingtonpost.com/local/...e90_story.html
- http://www.afa.org/media/press/2013/...iotWinners.asp
- http://www.bizjournals.com/washingto.../03/18/DC78758

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Air Force Association's
CYBERPATRIOT
National High School Cyber Defense Competition
presented by NORTHROP GRUMMAN Foundation

Issue 0012
March 2013

The CyberSentinel

Commissioner's Cache

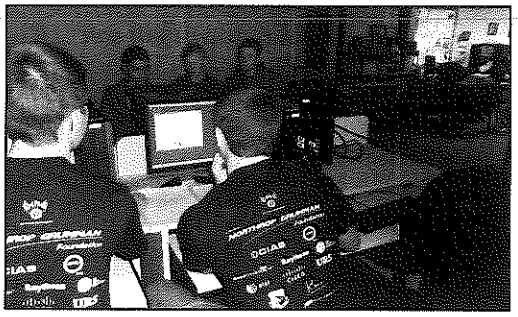
Congratulations CyberPatriot competitors! You made it through our most challenging season of competition yet! And with our new competition system (CCS) and the addition of digital forensics to the Semifinals you were faced with new and more difficult challenges than teams in previous years. The teams that participated in the Consolation Round and the Semifinals were given time management issues not seen in previous rounds of competition. In the end we had the best year of competition so far. Thanks to our coaches and mentors who selflessly dedicated many hours of their time to give you the opportunity to compete in a challenging, fair, and safe environment. The national finalists will be arriving soon in the Washington, D.C., area to attend The National Finals Competition. This year Cisco will conduct the Networking Event to challenge our national finalists to build and secure a network. Joining the competition will be Splunk with their monitoring software that will assist teams in the Network Security Event. Again, this year's competition is an international competition, with two teams attending from Manitoba, Canada. Thank you for a superb effort this season. CyberPatriot keeps getting bigger and better and it is because of you!

Bernard K. Skoch
Commissioner
CyberPatriot Program
Air Force Association

Program Office Bits

CyberPatriot VI
Pre-Registration is Underway!
Go to: www.uscyberpatriot.org

- *CyberPatriot V National Finals Competition: March 14-16, 2013*
- State standings will be released following the CyberPatriot V National Finals Competition.



The Summit Technology Academy team of Lee's Summit, Missouri, competes in the CyberPatriot V Semifinals. The team will compete in the CyberPatriot V National Finals Competition in Washington, D.C., during March 14-16, 2013.

Competitor Interns with Northrop Grumman; Monitors Global Network

As an intern with the Northrop Grumman Cyber Security Operations Center (CSOC) in Annapolis Junction, Md., Greg Bekher monitors the Northrop Grumman Global Network (NGGN) and designs computer security tools. He developed skills needed for the internship by participating in CyberPatriot.

Greg is from Laurel, Md., and just started his junior year at Chesapeake Science Point Public Charter School in Hanover, Md. As captain of his CyberPatriot team at school, he says his participation in the program was great preparation for his CSOC work. "The cybersecurity competitions helped me develop skills to recognize malicious presence within computers and networks," Greg says.

Greg says he enjoyed computers and electronics from a young age. "The skills I developed came in handy when my school's computer teacher asked me to help start our school's cybersecurity club, which eventually participated in CyberPatriot," he says.

CyberPatriot Competitors are given a top priority for Northrop Grumman's paid internship positions.

Working in the CSOC, Greg says, is very much like hunting for treasure. "It's always fulfilling to find a gem in the data we receive, do research on it, and then mitigate the problem."

Greg first started working for Northrop Grumman last May as a summer intern and continues to work each Saturday throughout the school year.

His technical skills such as programming, Linux CLI, and logical analysis are truly ahead of average teenagers," said his manager at Northrop Grumman.

Being a cyber defender, Greg says, keeps him very engaged. "It's a huge responsibility. There's always something new popping up, and this keeps me engaged. Writing new tools keeps me motivated. I see applications for my work, software and ideas everywhere in the

(Continued on Page 4.)

Coaches' Corner

- **CyberPatriot V Survey**. The CyberPatriot V Post Competition Survey will be e-mailed to Coaches and Mentors during March 2013.

Features

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2 Pursuing a Career in IT? Consider Microsoft Certification
3 Spotlight on Northern Virginia
4 This Month in Cyber History
4 CyberPatriot V National Finalists

Pursuing a Career in IT? Consider Microsoft Certification

By Alison Fang Yuen and Leslie Walczak, CyberPatriot Program Office

In June 2012, *The CyberSentinel* addressed the question of how job seekers can become qualified in information techonology (IT) and more marketable to employers. "How to Prepare for a Career in Networking," which can be found in our online archives, describes the advantages of Cisco certification. In this article we will examine the process and benefits of becoming Microsoft certified.

Many organizations in both the private and public sector rely on Microsoft products in their day-to-day operations. As a result, Microsoft's certifications are recognized worldwide as tools for identifying valuable IT professionals.

According to the Microsoft website, to meet the distinct needs of employers, Microsoft offers certifications in the following technical categories:

- Server
- Desktop
- Office
- Database
- Developer

CyberPatriot alumni might be most interested in obtaining certification in the Server category.

Depending on the category, IT professionals can obtain up to three levels of certification: Associate, Expert, and Master (See Figure 1.). According to the Microsoft website, the levels of certification have the following implications:

Associate – An employee with Associate level certification has the core skills necessary to operate relevant Microsoft technology. He or she has a strong foundation on which to build a career in IT.

Expert – Expert certified candidates have an advanced understanding of Microsoft technology.

They can build innovative solutions to IT problems and they understand the relationships between multiple Microsoft technologies. This level certification is standard for IT professionals.

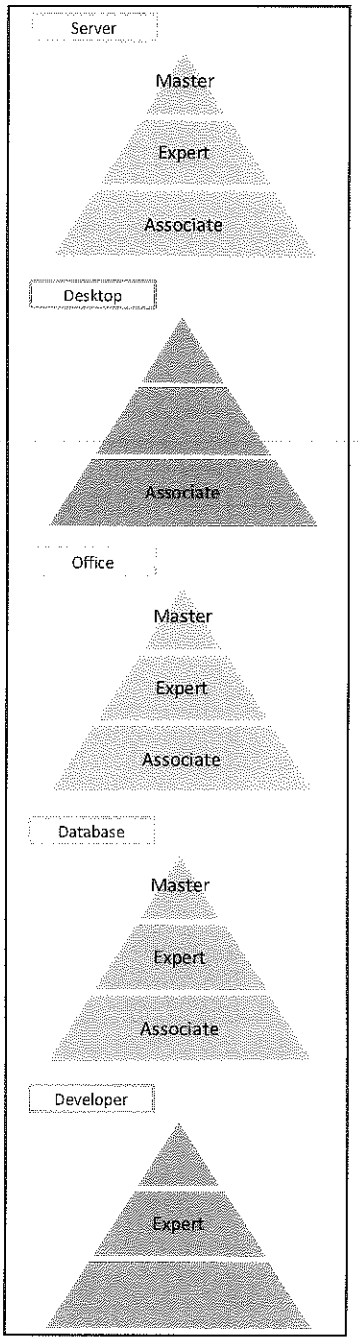


Figure 1. Levels of Microsoft Certification

Master – Master level certification is designed for IT professionals looking to certify their ability to design and implement technical solutions to the most complex problems. Candidates for this level certification are generally seasoned professionals.

Microsoft certification exams can be completed at academic locations or commercial testing centers. The tests typically cost around $150 and take two to four hours to complete. If you decide to register for an exam, the Microsoft Learning website provides excellent study materials and practice tests. Third party companies also offer exam preparation courses and resources.

Note that in an effort to keep up with industry trends, Microsoft sometimes updates the criteria used in its certifications. For example, in September 2012, the company retired many of its certifications and replaced them with new certifications that emphasized cloud computing. As you get closer to entering the job market, be sure to revisit the Microsoft Learning website to check that your certificates are up-to-date.

To find out more about certifications, visit the Microsoft Learning website: http://www.microsoft.com/learning/en/us/certification-exams.aspx.

Microsoft | imagine cup

Microsoft is a Cyber Diamond level sponsor of CyberPatriot. The company provides DreamSpark access to CyberPatriot participants, allowing competitors to enjoy an extensive library of Microsoft software at no cost.

To learn more about the Microsoft DreamSpark program, visit: https://www.dreamspark.com/.

The CyberSentinel

Publisher: Bernard K. Skoch
Editor: Francis S. Zaborowski
Assistant Editor: Leslie Walczak

CyberPatriot Program Office
•1501 Lee Hwy Arlington, VA 22209 • www.uscyberpatriot.org
•E-mail: info@uscyberpatriot.org • Telephone: 877.885.5716

Spotlight on Northern Virginia

Marshall Academy Prepares for Cyber Careers

By Marshall Academy Cyber Security Club Parents

Marshall Academy's Cyber Security Club in Falls Church, Va., is sending two teams to the CyberPatriot V National Finals Competition.

Marshall Academy Administrator Jeff McFarland addresses Marshall's 2012 CyberPatriot IV National Finalists at the Gaylord National Harbor. Team 1 Captain Kevin Houk and Mentor Ryan Walters look on.

The captain of Team 1, Kevin Houk, is a senior who helped form the Cyber Security Club last school year in 2011. In the club's inaugural year, the team made it to the CyberPatriot IV National Finals Competition. In this year's Semifinals, Marshall Academy's Team 1 had the #1 score in the nation.

Kevin started from scratch with just some computer classes at the Marshall Academy. "I heard about the new cyber club and joined," he said. "I had only heard of UNIX or DOS and had no experience with 'back doors' and 'hacking.'" This group and its mentor, Ryan Walters, have changed his life. "I now know what I want to do as a career," said Kevin. "I am applying only to colleges that have a degree program in cyber security." He is presently waiting to hear from his top college choices, Penn State and Virginia Tech.

CJ Gardner is also on Team 1 and is a junior whose college plans are firmly set on computer science. "I really enjoy discovering new aspects of computer and network security, and our mentor Mr. Walters is giving us a crash course in advanced threat detection and neutralization," said CJ, and "I think we are learning way above the normal high school level – just what I need and want!" CJ is a self-taught Linux expert and is also competing in the Virginia Governor's Cup NetWars on March 2nd along with fellow teammate Jack Lynch. CJ hopes to lead Marshall Academy to the CyberPatriot National Finals once again next year.

Sophomore Jacob Walters is the Captain of Marshall Academy CyberPatriot Finalist Team 2. Jacob is the son of the club's mentor, Ryan Walters. "I plan to follow my father's footsteps and pursue a career in computer science and cyber security" said Jacob. "Now I'm very familiar with the inner workings of both Windows and Linux platforms." Jacob's Team 2 overcame a forced restart midway through the six-hour CyberPatriot Semifinals competition, but still qualified for the National Finals. "We had to think fast and scramble, but we're a strong team and do well under pressure."

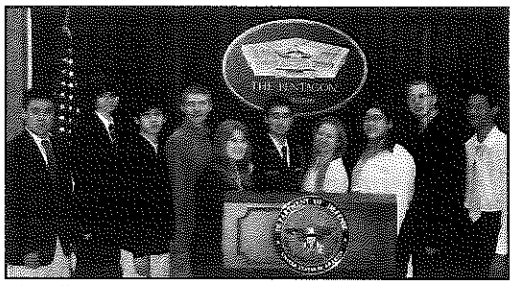
Both teams are training hard to give their best at the finals. Mentor Ryan Walters is the CEO of TerraWi, a mobile security services firm based in Tysons Corner. Ryan and his company have invested heavily in mentoring and teaching the 37 Marshall Academy Club members. Their efforts have paid off handsomely, as evidenced by Marshall's performance in the Semifinals.

Left: Team 1 Captain Kevin Houk and Team 2 Captain Jacob Walters at the 2012 CyberPatriot IV National Finals Competition.

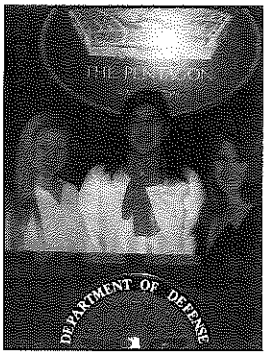
Chantilly Academy Explores Careers in Cyber Defense

By Joan Ozdogan, Coach

Eleven veteran CyberPatriot Competitors of Chantilly Academy – A Governor's STEM Academy, participated in a day-long Federal IT Job Shadow Day program at the Pentagon on Thursday, February 7, 2013. Students selected to participate were members of Chantilly Academy's CyberPatriot V National Finals Competition and National Semifinal teams. Hosted by the Department of Defense Chief Information Officer and the Departments of the Air Force and Army, students toured the Department of Defense (DoD) Network Monitoring Intrusion Center, participated in a Digital Personal Protection Briefing, and heard about careers in the United States Cyber Command. During their time at the Pentagon, they were addressed by Ms. Teresa M. Takai, Department of Defense Chief Information Officer (DoD CIO).

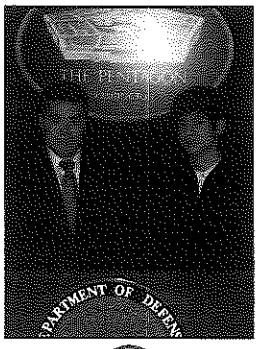


Chantilly Academy – A Governor's STEM Academy future cyber-defenders (from left to right): Chris Kim, Liam Devoe, Weyland Chiang, Ben Meyer, Jessica Miers, Jared Ohashi, Jackie Lasky, Tanya Sutan-Tanon, Greg Zeigler and Maxime Caudebac-Wearing.



Above: Having just learned that the Chief Information Officer of the Pentagon is a woman, future cyber defenders (left to right) Jackie Lasky, Tanya Sutan-Tanon and Jessica Miers are encouraged in their plans for successful careers in cyber security.

Below: CyberPatriot V National finalists Chris Kim (left) and Weyland Chiang (right) are considering potential careers with the Department of Defense.



Competitor Interns with Northrop Grumman (Cont'd)

(Continued from Page 1)

world."

Greg is making a difference in the CSOC by writing security software that simplifies the job. Making a difference to Greg means changing the world and changing the way people live their everyday lives. "I anticipate the work I do today will make a difference in Northrop Grumman's systems and in the field of cybersecurity. I'm aiming for the ideas I bring to life tomorrow to make a difference in the future of computing." He plans to major in computer science/software engineering in college.

This Month in Cyber History

The first warrant to search a computer's storage was issued on February 19, 1971. As a result of the court's decision to extend warrants to include access to computers, law enforcement agents have been faced with increasingly sophisticated encryption methods.

(Source: www.ComputerHistory.org)

For more information: go to: http://www.computerhistory.org/tdih/February/19/

CyberPatriot V National Finalists

Open Division

School Name	Coach Name	City	State
Chantilly Academy – A Governor's STEM Academy	Joan Ozdogan	Chantilly	Virginia
COE-LAX/Edward Roybal Learning Center	William Diaz	Los Angeles	California
COE-LAX/Franklin High School	Yenny Yi	Los Angeles	California
COE-LAX/North Hollywood High School 1	Jay Gehringer	North Hollywood	California
COE-LAX/North Hollywood High School 6	Yolanda Gardea	North Hollywood	California
COE-SAT/Alamo Academies - ITSA New Braunfels 2	Sandi Boyd	New Braunfels	Texas
Iolani School	Lisa Miyamoto	Honolulu	Hawaii
Marshall Academy	Jason Simeon	Falls Church	Virginia
Marshall Academy	Shelli Carpenter	Falls Church	Virginia
MIT Lincoln Laboratory	Chiamaka Porter	Lexington	Massachusetts
Palos Verdes Peninsula High School	Greg Grenier	Rolling Hills Estates	California
Summit Technology Academy	Lisa Oyler	Lee's Summit	Missouri

All Service Division

School Name	Organization Type	Coach Name	City	State
Big Sioux Composite Squadron	Civil Air Patrol	Shannon Hofer	Brookings	South Dakota
COE-SAT/East Central High School	Army JROTC	Jasper Miller	San Antonio	Texas
COE-SAT/John Jay H.S.	Air Force JROTC	John Lopardi	San Antonio	Texas
COE-SAT/Medina Valley High School	Air Force JROTC	Robert Spracale	Castroville	Texas
Colorado Springs Cadet Squadron	Civil Air Patrol	Bill Blatchley	Colorado Springs	Colorado
Covington High School NJROTC	Navy JROTC	Douglas Johnson	Covington	Louisiana
Flour Bluff NJROTC	Navy JROTC	Armando Solis	Corpus Christi	Texas
Fort Fisher Division 113FOR	Naval Sea Cadet Corps	Joseph Gombos	San Diego	California
La Cueva High School	USMC JROTC	Alberto Griego	Albuquerque	New Mexico
Leilehua High School	Army JROTC	Nicholas Spiridigliozzi	Wahiawa	Hawaii
Marine Military Academy	USMC JROTC	William Beckman	Harlingen	Texas
Monty Tech MCJROTC	USMC JROTC	Paul Jornet	Fitchburg	Massachusetts
Valor 063VAL	Naval Sea Cadet Corps	Kelly Jones	Gardendale	Alabama
Youngstown ARS Composite Squadron	Civil Air Patrol	Paul Creed III	Vienna	Ohio

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Press Release

Released: 4 February 2013

G.C. Marshall Statesmen Cyber Security Club Press Release

CyberPatriot National Finals Competition, March 14-16

Three teams from two Fairfax County high schools have been selected to compete in the finals of the nation's largest high school cyber security competition; CyberPatriot-The National High School Cyber Defense Competition. Two teams from Marshall High School (Falls Church) and one from Chantilly High School prevailed over a massive national presence (over 1,300 teams), scoring high enough to capture one-quarter of the Open Division teams slated to compete in the national finals on March 14-16 2013 at the Gaylord Convention Center, National Harbor, MD.

The CyberPatriot competition was established by the Air Force Association and its founding partners are SAIC and CIAS at the University of Texas-San Antonio. The Northrop Grumman Foundation is the Presenting Sponsor for CyberPatriot V (this year's competition). Both the semi-final and finals competitions use SAIC'sCyber Network Exercise System (CyberNEXS) - an industry-standard cyber training, certification, and exercise model that helps cyber security professionals protect critical data assets.

One Marshall Academy team, "Flying Bacon" headed by team captain Kevin Houk, was the highest-scoring national team in the rigorous semi-final competition on January 12, 2013. This competition was extremely grueling, each team having exactly six hours to find and remove viruses, malware, back doors, and security flaws, as well as decrypting and decoding cryptographic messages. All three FCPS teams will be joined by five teams from California, and one each from Hawaii, Massachusetts, Missouri, and Texas. This competition is professional-grade, reflecting the high level of training and education FCPS students have received from their mentors and sponsors, including security consulting company TerraWi (for Marshall teams) and defense contractor Northrop-Grumman (for the Chantilly team). Cyber security has been highlighted as one of the Commonwealth's critical priorities for STEM (Science, Technology, Engineering and Mathematics), resulting in the establishment of the Governor's STEM Academies.

The Marshall team members are:

- Team 1 (Flying Bacon): Jack Lynch, CJ Gardner, Peter Morrissey, Alex Handley, Ramon Martinez-Diaz, and Captain Kevin Houk
- Team 2: Pehr Ansaripour, Alex Ryan, Peter Marr, Jessie Galanxhi, Charlie Franks, and Captain Jacob Walters

In related news, two students from the Marshall "Flying Bacon" team will also be competing individually at the Virginia Governor's CyberSecurity Cup, aka "NetWars Tournament" at George Mason University on March 2-3 2013. Juniors C.J. Gardner and Jack Lynch were among the highest scoring Commonwealth high school students chosen to compete in this prestigious event.

The Commonwealth remains committed to helping the nation fill a critical skills gap in advanced technical cyber security skills. Virginia high school programs such as the Cyber Foundation's NetWars Tournament highlight this commitment and the Commonwealth's dedication to helping secure our national defense in the 21st century.

Commonwealth of Virginia
Office of Governor Bob McDonnell

FOR IMMEDIATE RELEASE
March 26, 2012

Contact: Jeff Caldwell
Phone: (804) 225-4260
Email: Jeff.Caldwell@Governor.Virginia.Gov

Secretary of Technology Jim Duffey Congratulates CyberPatriot IV Finalists

Photo: Secretary Duffey and Marshall Academy High School Team

RICHMOND – Governor McDonnell and Secretary of Technology, Jim Duffey, congratulated a team of students from the Marshall Academy High School of Falls Church, Va., who were among 24 teams nationwide that advanced to the National Finals of the CyberPatriot IV competition last week in Washington, D.C.

CyberPatriot is the nation's largest and fastest growing high school cyber defense competition established by the Air Force Association with Northrop Grumman Foundation as its presenting sponsor.

Secretary Duffey toured the Northrop Grumman Center for Innovative Solutions in McLean, Va., on March 24 to present, on behalf of the Governor, certificates of achievement to all finalists. The tour of the Center was part of a final day of activities for competitors while in the Washington, D.C. area. Duffey addressed the students emphasizing the importance of cyber security and other STEM disciplines

"Cyber Security is a critically important to discipline in the Commonwealth and for our nation. With a vast cyber industry calling Virginia home and the highest percentage of workers employed in high-tech positions in the country, we are acutely aware of the need for a strong cyber workforce," said Secretary Duffey. "Competitions, such as CyberPatriot, prepare and encourage our young people to pursue careers in this growing field."

"Grooming tomorrow's workforce is a top priority at Northrop Grumman," said Diane Miller, Northrop Grumman Program Director for CyberPatriot. "CyberPatriot is one of many educational STEM outreach opportunities the company is engaged in to help meet the ever-growing demand for cyber pros. We're thrilled with the participation from our Virginia high school teams and look forward to hiring some of those CyberPatriots to work for Northrop Grumman as interns this summer, maybe even here at the Center for Innovative Solutions."

The CyberPatriot IV competition started in October 2011 with 1,014 student teams participating nationwide, including more than 50 from across Virginia. After three virtual rounds of competition, the national finals took place on March 23rd. CyberPatriot was created to inspire high school students toward careers in cyber security or other science, technology, engineering and mathematics (STEM) disciplines critical to our nation's future.

FOR IMMEDIATE RELEASE
March 19, 2013

Local Teams Receive Top Awards in National High School Cyber Competition

ARLINGTON, Va. – After three grueling online preliminary rounds and nearly six months of preparation, the winners of CyberPatriot V, the nation's largest high school cyber defense competition, have been announced!

On March 16, 2013, the Air Force Association's CyberPatriot V concluded its National Finals Competition at the Gaylord National Resort and Convention Center in Washington, D.C. Team "Flying Bacon" coached by Jason Simeon from Marshall Academy in Falls Church, Virginia took second place in the division, and team "___ Invaders" (Space Invaders) coached by Shelli Carpenter, also from Marshall Academy placed third.

The Marshall Academy teams were two of the 12 finalists out of the 419 teams originally registered for the competition's Open Division. CyberPatriot V kicked off last October with more than 1,200 teams registered from public, private, parochial and home schools in the Open Division, and Junior ROTC units of all Services, US Naval Sea Cadet Corps squadrons and Civil Air Patrol squadrons in the All Service Division. This year's registrants represented all 50 states, U.S. Department of Defense Dependent Schools in Europe and the Pacific, and Canada.

CyberPatriot—The National High School Cyber Defense Competition, an education initiative established by the Air Force Association, is a one-of-a-kind cyber defense competition designed to inspire students to consider science, technology, engineering and mathematics (STEM) fields in their studies. The unique structure helps to prepare college- and career-ready students with not just technical skills, but also invaluable experience in teamwork, leadership, and critical-thinking. Competitors also gain great insights and technical expertise from industry leaders, including CyberPatriot's presenting sponsor the Northrop Grumman Foundation.

"CyberPatriot is playing a role in developing more cyber-savvy citizens in this country, truly engaging students with hands-on learning toward real-world challenges, and building America's technical workforce" said Bernie Skoch, CyberPatriot Commissioner. "All of the finalists here have proven to be exceptionally talented students, building a keen understanding of the challenging tasks we have given them. I congratulate them all for being among the top 26 teams in the entire nation."

The Northrop Grumman Foundation also announced at the event that it will continue as the presenting sponsor of CyberPatriot with a $4.5 million, three-year grant to AFA. Other CyberPatriot sponsors include founding partners SAIC and CIAS at the University of Texas-San Antonio, as well as AT&T, Cisco, Microsoft, Raytheon, USA Today Education, Splunk, URS, the Air Force Research Laboratory, Embry-Riddle Aeronautical University (Prescott, Arizona Campus), K2Share, MIT Lincoln Laboratory, and the University of Maryland University College.

Congratulations to all of the finalists! Registration for the 2013-2014CyberPatriot VI competition is now open. For more information on how to register please visit www.uscyberpatriot.org or email info@cyberpatriot.org.

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The Air Force Association is a non-profit, independent, professional military and aerospace education association. Our mission is to promote a dominant United States Air Force and a strong national defense, and to honor Airmen and our Air Force Heritage. To accomplish this, we:

- EDUCATE the public on the critical need for unmatched aerospace power and a technically superior workforce to ensure U.S. national security.

- ADVOCATE for aerospace power and STEM education.
- SUPPORT the Total Air Force family and promote aerospace education.

AFA has 200 chapters nationally and internationally representing more than 105,000 members. Visit AFA at www.afa.org

Welcome to the GCM PTSA Website!

Reminder: If you wish, you can log in with your username, or your email address (and your password). If you've forgotten your password, click the blue login button and there's a link to have reset instructions sent to you. Click the Register button to create an account on this website. Only registered users can post on this website, and spam is not tolerated.

GCM Props

BEST HIGH SCHOOLS U.S.News GOLD 2012

Donate to the PTSA!

You don't need to join the PTSA or create an account on this website to make a fully tax deductible donation. GCM PTSA is a certified 501(c)(3) charitible organization, and your email receipt from Paypal can be used when you file your taxes.

Your donation helps the PTSA provide a wide variety of enriching activities for your students that are not covered by the FCPS school budget. Without your donation, these activities don't happen.

Donate

Please donate now, it's easy, fast and secure!

Quicklinks

List of PTSA Officers & Committee Members
Want to write something for the website?
Ask a Question

Join the PTSA!

If you haven't already done so, please join the PTSA! It's fast and easy, just click this button to get started:

Pay Dues Online

If you prefer to use a paper form and send us your check, CLICK HERE to print the form, fill it out and send it to school with your dues payment and donation check.

The Marshall PTSA is "*Your PTSA*" and works hard to help both parents and students get the most out of your high school experience. Your participation is important, and helps our community to thrive.

Thank you for donating your time and money to help support our valuable efforts!

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Marshall Students Compete in VA Governor's Cup CyberChallenge

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by Chris Gardner

Published on 03-04-2013 10:07 AM

0 Comments

On March 2nd, two Marshall students joined 38 other finalists from all over the Commonwealth to the Virginia Governor's Cup CyberChallenge 2013 competition. This was the first annual competition of this quickly expanding national program.

Governor's Press Release:

Click to read Governor McDonnell's Press Release

Juniors CJ Gardner and Jack Lynch were treated to an all-expenses-paid weekend at George Mason University to compete in a grueling, five-hour individual competition to test their computer and network hacking and defense skills. CJ finished in 4th place, and Jack in 7th place. Jack also won a prize for being the first competitor to achieve Level 3 in the

GCM Blast Signup & Other Email Lists

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For Email Newsletters you can trust
Please note that this signup process is *completely separate* from the website registration process.

Volunteer!

Please consider volunteering, it's easy-just click this button!

Volunteer Online

If you prefer to use a paper form, CLICK HERE to print the form, fill it out and send it to school. Your participation is important, and helps our community to thrive. Thank you for donating your time to help support our valuable efforts!

Calendar

< April 2013 >

Su	Mo	Tu	We	Th	Fr	Sa
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7	8	9	10	11	12	13

Ask Your PTSA

Message

Random Question (humans only!)
On our home page, what color are the arrows in the welcome message that point to registering and signing up?

Submit

Marshall High School
MStatesmen

MStatesmen All your NOVA questions answered tonight! NVCC/FCPS Info Night, April 16 at Robinson HS 6:30-8:30PM. Register at tinyurl.com/nvccregis .
6 hours ago · reply · retweet · favorite

MStatesmen All your NOVA questions answered on the spot! NVCC/FCPS Info Night, April 16 at Robinson HS 6:30-8:30PM. Register at tinyurl.com/nvccregis.
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Passed 16-Apr-2013

14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30

competition. CJ achieved Level 3 a few minutes later and by the end of the competition, fully one-third of the 40 competitors had achieved Level 3.

This is significant because the SANS NetWars tournament is the *exact same* competition used by industry and government cyber security *professionals* as part of their education & certification. Less than 30% of all professionals *in the nation* make it to Level 3 or higher (there are 5 levels in total). Plus, the professionals have several days to complete the tournament, while the Governor's Cup finalists have only 5 consecutive hours. Kudos to our students!

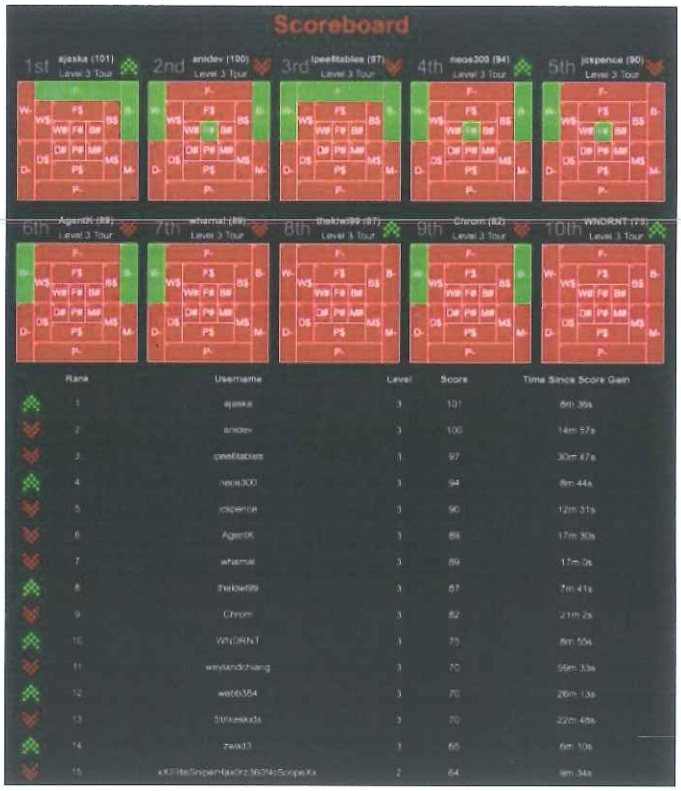
We have three press release versions available. They are very similar, just geared to different audiences:

Click here to read the official GCM Press Release

Click here to read an unofficial FCPS-wide Press Release

Click here to read an unofficial State-wide Press Release

Here's a snapshot of the live scoring system at the end of the tournament. CJ's handle is neos300 and Jack's is wharnal:



Background:
NetWars is a grueling and intense, individual competition. As the competitors progress, the challenges become harder. For the Governor's Cup, a real-time scoring system provides instant feedback, scores and standings, and the scoring system is hidden for the final 15 minutes - so the competitors won't know their actual standing till the end.

The competition is made up of 5 levels of increasingly difficult problems to solve and questions to answer. Competitors must use a wide variety of high-level computer skills to discover vulnerabilities, find hidden codes and solve real-world security problems that information security professionals encounter every day. At level 5, competitors work to both defend their own systems and defeat other competitors' systems in a "king of the hill" style competition.

The annual Virginia Governor's Cup CyberChallenge is organized by the Cyber Aces Foundation , a Bethesda, M.D.-based nonprofit working to discover and develop a talented new cybersecurity workforce. The Governor's office sponsors the competition in conjunction with the U.S. Cyber Challenge - part of the Administration's Comprehensive Cybersecurity Initiative. There is a critical and growing shortage of qualified cybersecurity professionals in both government and the private sector. With the Administration's initiative backing them, state and local government and school systems across the nation are working to address that shortfall as early in the educational system as practical. Governor Bob McDonnell is leading the charge with Governors across the nation in providing more STEM (Science, Technology, Engineering & Mathematics) education to the K-12 sector.

MStatesmen NOVA info session/app help, Friday Learn in College & Career Center.

Join the conversation

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everychild.onevoice.
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Following our Governor's lead, G.C. Marshall is applying to have the Marshall Academy be designated as a "Governor's STEM Academy", and also pushing forward an initiative to designate FCPS (with Marshall Academy and Chantilly Academy leading) as a CyberPatriot Center of Excellence.

CJ and Jack are also members of our school's #1 team competing on March 15th at the CyberPatriot V National cyber-defense competition at National Harbor, MD. Their mentor Ryan Walters, CEO of TerraWi in Tysons Virginia has trained to a high pitch both the school club and the two teams who have advanced to the finals in this prestigious event.

References:

1. https://www.cyberfoundations.org/hom...s_cup_virginia
2. http://www.sans.org
3. http://www.sans.org/cyber-ranges/netwars
4. http://cyberaces.org/
5. https://www.nbise.org/uscc/
6. http://www.whitehouse.gov/cybersecur...ity-initiative
7. http://www.doe.virginia.gov/instruct...gov_academies/
8. http://uscybersecurity.org
9. http://www.uscyberpatriot.org/Docume...Guidelines.pdf

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For Immediate Release

March 4, 2013

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Jeff Caldwell
Press Secretary
(804) 786-2211

Contact

Cameron Kilberg
Assistant Secretary of Technology and Senior Policy Advisor
Secretary of Technology
(804) 786-9579
www.technology.virginia.gov

Governor McDonnell Hosts First Annual Governor's Cyber Challenge at George Mason University

– Governor Partners with Cyber Aces Foundation to Host The Top 40 Students In a State Wide Championship Competition and Awards $10,000 In Scholarship Funds –

RICHMOND - Governor McDonnell hosted the first annual Governor's Cyber Challenge this past weekend. This challenge invited all high school students in the Commonwealth to participate in a series of online cyber quizzes, with the top 40 students being asked to participate in a live championship competition at George Mason University in order to compete for $10,000 in scholarships. The program featured 110 schools, from throughout the Commonwealth, who registered 733 students for the challenge.

Governor McDonnell said, "Our culture continues to become more technology centered and reliant on our information systems. Increasingly the threat of a cyber attack is real and urgent. To be prepared, we need a workforce properly trained in cyber security. Unfortunately, as of today, estimates show that the nation as a whole is short an estimated 20,000 workers trained in cyber security. We must continue to support and encourage programs like this that prepare the next generation for the important jobs of the future."

"The Commonwealth's higher education institutions already produce a robust, and educated information technology workforce, contributing more than 2,150 technology graduates annually to the labor pool," said Secretary of Technology Jim Duffey. "But we know we could be doing more. Therefore, we created the Governor's Cyber Challenge to help educate and excite our students about education and careers in cyber security."

The challenge was a partnership with the Cyber Aces Foundation, and the U.S. Cyber Challenge and was sponsored by the SANS Institute. This year's winners are:

First Place (Winning a $5,000 Scholarship): Arlan Jaska, Thomas Jefferson High School for Science and Technology.

Second Place (Winning a $3500 Scholarship): Anirudh Bagde, Chantilly Academy, a Governor's STEM Academy.

Third Place (Winning a $1500 Scholarship): Collin Berman, Thomas Jefferson High School for Science and Technology.

For more information on the winners and the rest of the top 40 participants: http://www.technology.virginia.gov/docs/CyberAces.pdf

ABOUT CYBER ACES FOUNDATION:

The Cyber Aces foundation is a 501 (c) 3 organization founded to help people discover and pursue cyber security education and careers. The foundation makes cyber security more accessible through on-line education and competition events for high school and college students, veterans, job seekers, and second career seekers and offers an elite development program that provides a fast track from cyber talent to cyber workforce.

ABOUT THE U.S. CYBER CHALLENGE:

The mission of the U.S. Cyber Challenge (USCC) is to significantly reduce the shortage in the cyber workforce by serving as the premier program to identify, attract, recruit and place the next generation of cyber security professionals. USCC's goal is to find 10,000 of America's best and brightest to fill the ranks of cyber security professionals where their skills can be of the greatest value to the nation.

ABOUT THE SANS INSITUTE:

The SANS Institute is the principal cyber security training institute for the U.S. military and intelligence agencies as well as for power companies, banks, law enforcement and other civilian government agencies. More than 147,000 SANS alumni lead and serve on both offensive and defensive cyber teams and SANS cyber simulators are used to assess and develop advanced technical skills. SANS also grants Master of Science degrees in cyber security engineering and management and operates the Internet Storm Center -- the Internet's early warning system.

# # #

COMMONWEALTH of VIRGINIA

Office of the Governor

Robert F. McDonnell
Governor

August 13, 2012

To High School Teachers Across the Commonwealth:

I am writing to ask for your help to give your students a head start in one of the fastest growing industries: cyber security. I am hosting the first annual Governor's Cyber Challenge this fall and I am inviting your students to participate in this initiative.

Science, Technology, Engineering and Mathematics (STEM) education is an important piece to the Commonwealth's, our nation's, and our students' futures. Events such as this one will help to engage students and introduce them to the much-needed technology skills that so many careers of the 21st Century will require.

This competition will help the nation fill a critical skills gap in cyber security. I invite your students who have an interest in computers, information technology, and cyber security to compete in the upcoming competition. Below you will find more information about the Governor's Cyber Challenge. If you have any questions, please contact Cameron Kilberg, Assistant Secretary of Technology at Cameron.Kilberg@governor.virginia.gov or 804-786-0226.

We hope you and your students will participate in this exciting event.

Sincerely,

Robert F. McDonnell

Robert F. McDonnell

Patrick Henry Building • 1111 East Broad Street • Richmond, Virginia 23219 • (804) 786-2211
www.governor.virginia.gov

The Governor's Cyber Challenge

Eligibility: All students enrolled in a public or private high school (and including homeschooled students) in the Commonwealth of Virginia, in the fall of 2012.

The Competition: The Governor's Cyber Challenge consists of two parts. The first part is a set of online quizzes. The top 40 scoring students will advance to the second part, which are the finals on March 2, 2013, at George Mason University. Winners of the competition will receive scholarships in the amounts of $5,000 for First Place, $3,000 for Second Place, and $1,500 for Third Place.

How Do You Play?

Step One: Register.

A teacher, principal or school staff member must act as a school coordinator. This coordinator collaborates with the Cyber Challenge organization as needed, and distributes the online access codes to the students.

Below you will find the different steps for the registration process:

1. The coordinator establishes a personal account on the Cyber Foundations website: https://www.cyberfoundations.org/.
2. The coordinator registers their school. There is no registration fee.
3. The coordinator will receive the access codes the students will need to register with.
4. Students then may proceed by registering personal accounts using the access codes.

Step Two: Have students use the online tutorial to prepare for the three set of quizzes and complete all three.

The quizzes, located on the Cyber Foundations website, are focused on computer networking, operating systems, and system administration. The students will be able to study these materials in preparation for each competitive quiz.

Students who rank highest on these sets of quizzes will get a formal invitation to participate in the finals of the Governor's Cyber Challenge at George Mason University on March 2, 2013, which will feature an interactive, face-to-face NetWars tournament.

Step Three: Have the finalist participate in NetWars at George Mason University on March 2, 2013.

NetWars is designed for people who have a set of cyber skills; therefore, the top quiz scorers will have the skills needed to engage the program. For more information on NetWars, please see below.

Important Dates:

Aug 1, 2012(Wednesday) - Registration Opens, 8am Eastern Time
Oct 15, 2012 (Monday) - Registration deadline
Oct 20, 2012 (Saturday) - Module 1 (Networking) tutorials open
Oct 30, 2012 (Tuesday) - Student registration entry code deadline
Nov 2, 2012 (Friday) - Module 1 Competition
Nov 3, 2012 (Saturday) - Module 2 (Operating Systems) tutorials open
Nov 16, 2012 (Friday) - Module 2 Competition
Nov 17, 2012 (Saturday) - Module 3 (System Administration) tutorials open
Dec 7, 2012 (Friday) - Module 3 Competition
Dec 31, 2012 (Monday) - Access to content expires
March 2, 2013 (Saturday) – Finals at George Mason University

Information on the Quiz and NetWars applications:

Cyber Foundations

Cyber Foundations is the entry-level competition in a series of increasingly challenging contests launched by the U.S. Cyber Challenge (USCC, https://www.nbise.org/uscc), in cooperation with leaders of the NSA, the FBI, and the Department of Homeland Security. USCC was chartered to identify and nurture talented Americans who can become the future cyber guardians and cyber warriors for United States companies, government agencies, and military services.

More information can be found at: https://www.cyberfoundations.org/

NetWars

NetWars is a hands-on, interactive learning environment with a focus on skills information security professionals use in their jobs every day. The Air Force relies on NetWars for its intermediate network warfare-training program and military officers cannot graduate from the training program without high-level mastery of NetWars. NetWars covers topics such as system hardening, packet analysis, digital forensics, vulnerability assessment, and much more. But NetWars also has basic levels that enable young people to demonstrate they have the aptitude to excel and also gives them a fascinating real-world environment to demonstrate their skills.

More information can be found at: http://www.sans.org/cyber-ranges/netwars

Questions regarding the Governor's Cyber Challenge should be directed to Cameron Kilberg, Assistant Secretary and Senior Policy Advisor, Office of Virginia's Secretary of Technology, 804-786-0226, Cameron.Kilberg@governor.virginia.gov.

Marshall Academy's CYBER PATRIOT TRAINING CAMP 2013

Join Cyber Patriot July 8th-12th as founder and CTO, Ryan Walters, of TerraWi combines with forensics expert, Rodney Caudle, and world renown Linux expert, Orlando Padilla, to teach a Cyber 101 course. Designed to inform and sharpen basic Cyber Security skills, this week will be filled with hands-on training for an unforgettable learning experience. Leave Cyber Patriot's 2013 training camp with a highly desired skill set in today's growing technologically inclined society.

- Cost - $150 (on-site campers) $75 (remote campers)
  **Camp t-shirt included for on-site campers. Lunch is not provided; pizza will be available for purchase.*
- Time - 9am to 3pm
- Location - Marshall Academy
  7731 Leesburg Pike, Room 501
  Falls Church, VA 22043
- Make checks payable to Marshall High School.

Student Name_____

Age_____ Date of Birth_____ Grade_____

Email Address_____

Phone Number_____

Address_____

City_____ State_____ Zip_____

Parent_____ Parent Contact Number_____

Parent Email_____

Food Allergies_____

T-Shirt Size: XS S M L XL _____

For more information contact Diane Murphy - Diane.Murphy@FCPS.edu

Sponsored By TERRAWI

Marshall Academy in Partnership with TerraWi offers Cyber Security Camp to FCPS High School Students

Forty high school students from Marshall, Madison, Oakton and McLean High Schools participated in a week long cyber security camp held at TerraWi Headquarters in Tysons Corner July 9th - 13th. The camp exposed interested students to the CyberPatriot competition, and to the nearly 6,000 currently unfilled cyber security jobs and careers in the greater Washington metropolitan area.

Cyber 101 was taught by Ryan Walters, CTO of TerraWi, and CyberPatriot graduates Bryon Bacon, Erik Wickert, and Kam-Ho Leung of Marshall Academy. Students provided their own laptop or iPad and worked in a virtual world performing simulations and 26 lab activities. Lab topics included Linux, network utilities, intelligence gathering, network vulnerability, ad-aware, metasplot, spybot, personal firewalls, antivirus, worms, remote controlling, buffer overflow, wireshark, and safely locking down your own personal computers and home networks.

For more information about next year's cyber camp contact Shelli Carpenter at Marshall Academy 703. 714. 5581 or shelli.carpenter@fcps.edu

Tim Kaine
Virginia

March 25, 2013

Mr. Jason Simeon
7731 Leesburg Pike
Falls Church, VA 22043

Dear Mr. Simeon:

Congratulations to you and Flying Bacon for finishing in second place in the Cyber Patriot 5 Open Division National Championship. You and your team should be very proud of this impressive accomplishment.

Cyber defense is an increasingly important field and I hope that your students will continue to study science, technology, engineering and math. We need more young people to pursue careers in cyber security in order to maximize safety in the digital environment.

I hope that you and your team enjoy the remainder of your time at Marshall Academy, and I wish you the best of luck in your future endeavors!

Sincerely,

Tim Kaine

Tim Kaine
Virginia

March 25, 2013

Ms. Shelli Carpenter
7731 Leesburg Pike
Falls Church, VA 22043

Dear Ms. Carpenter:

Congratulations to you and Invaders for finishing in third place in the Cyber Patriot 5 Open Division National Championship. You and your team should be very proud of this impressive accomplishment.

Cyber defense is an increasingly important field and I hope that your students will continue to study science, technology, engineering and math. We need more young people to pursue careers in cyber security in order to maximize safety in the digital environment.

I hope that you and your team enjoy the remainder of your time at Marshall Academy, and I wish you the best of luck in your future endeavors!

Sincerely,

Tim Kaine

McFarland, Jeff J.

From: McElveen, Ryan (School Board Member)
Sent: Friday, February 22, 2013 9:43 PM
To: Downey, Beth; Wardinski, Paul A.
Cc: Presidio, Sloan; Holt, Stephanie; Garant, Jay; Pearson, Jay W.; McFarland, Jeff J.; Kacur, James J.; Shade, Kenton; Wright, Douglas R.
Subject: Re: TerraWi

Tonight TerraWi gave out about (20) $1000 scholarships to the members of the Marshall and Chantilly CyberPatriot teams. It was great to see such an energized group of students.

Please let me know if you need any support at the Board level to better advocate for a cyber security course code at the state level. This is one of those rare opportunities to be the national leader in an emerging field that is a critical need in the DC area. The seeds have already been planted.

Thanks for all you've done to make the program possible.

Ryan

Ryan McElveen
Member, At-large
Fairfax County School Board

Please be aware that correspondence with School Board members is subject to the Virginia Freedom of Information Act. This means that your correspondence may be made public if (1) it deals with FCPS business and (2) someone requests it--- even if you have asked that your message be kept confidential. Only a few topics are exempt from the disclosure requirement, such as information about identifiable students and personnel information about individual employees.

McFarland, Jeff J.

From: Kilberg, Cameron (GOV) <Cameron.Kilberg@governor.virginia.gov>
Sent: Monday, March 18, 2013 10:40 AM
To: McFarland, Jeff J.
Subject: Congrats!

I was just informed that Marshall HS took two of the top spots at the Cyber Patriots Finals! Congrats (and that VA took all 3 spots)! Thats amazing!

Cameron Kilberg

Assistant Secretary and Senior Policy Advisor Office of Virginia's Secretary of Technology
804-380-6100 (cell)
804-786-0226 (office)

AUTOMOTIVE TECHNOLOGY CULINARY ARTS ENGINEERING COMPUTER TECHNOLOGY GAMING TV PRODUCTION

Tech Adventure Camp

Tech Adventure Camp is designed to give students the opportunity to explore careers and technology as they rotate through eight areas over a two week program. The camp is open to students in grades 5-7 during the 2012-2013 school year.

TECH ADVENTURE CAMP 2013

Dates: July 15 - 26, 2013

Location: Lake Braddock Secondary School

Student Hours: 8:30 a.m. – 2:00 p.m.

Eligibility: Tech Adventure Camp is open to students in **grades 5-7** during the 2012-2013 school year.

Course Offerings:

Automotive Technology
Computer Technology
Culinary Arts
Cyber Security (tentative)
Engineering/Robotics
Gaming
Integrated Technology
TV Production

Learn More:

PLAY VIDEO

REGISTRATION INFORMATION

Registration: **February 4th – May 31st**

REGISTRATION FORM

Deadline for registration is May 31, 2013. Registrations may be faxed, scanned and emailed or mailed to the following:

Fax: 571-423-4597

Email: ckkirby@fcps.edu

STEM Camp is designed to give students the opportunity to explore engineering careers and technology as they rotate through different classes over a one week program.

This camp will provide students with an opportunity to experience new technologies while they rotate through activities such as: **Rocketry, CNC & CAD, LEGO Robotics, Structures, Solar Cars, and Green Technologies.**

STEM CAMP 2013

Dates: July 8 - 12, 2013

Location: Lake Braddock Secondary School

Student Hours: 8:30 a.m. – 2:00 p.m.

Eligibility: STEM Camp is open to students in **grades 3-5** during the 2012-2013 school year.

Learn More:

PLAY VIDEO

Contact:
Tony Casipit
Camp Coordinator
571-423-4593
Tony.Casipit@fcps.edu

REGISTRATION INFORMATION

Registration: **February 4th – May 31st**

REGISTRATION FORM

Deadline for registration is May 31, 2013. Registrations may be faxed,

Appendix H:
Advisory Committee and MOA

Planning & Advisory Committee
A Governor's STEM Academy

Roster of Participants

Mrs. Cindy Blakeley
Director of Student Services
Marshall High School

Mr. Charles Britt
STEM Education Coordinator
SySTEMic Solutions
Northern Virginia Community College

Ms. Shelli Carpenter
Career Experience Specialist
Marshall Academy

Mr. Tony Casipit
Program Manager, Engineering Technology
Fairfax County Public Schools

Dr. Charles Clancy
Director, Hume Center for National Security and Technology
Associate Professor, Electrical and Computer Engineering
Virginia Tech / Arlington

Mr. Lou D'Alessandro
CISCO Academy Support
George Mason University

Mrs. Elizabeth Downey
Coordinator, Career and Technical Education
Fairfax County Public Schools

Ms. Kim Fields
Technology Support Specialist
Fairfax County Public Schools

Mr. Chris and Nichole Gardner
CEO & President PosiTek /
Vice President IBM
Global Business Services

Mrs. Nicole Rosett-Haubner
School Counselor
Marshall Academy

Mrs. Stephanie Holt
Program Manager, Business Info Systems
Fairfax County Public Schools

Ms. Lisa Huffman
President
Tysons Regional Chamber of Commerce

Mrs. Sanaa Itayem
ESOL Teacher
Marshall Academy

Ms. Elyssa M Jeter
Director, Northern Virginia
Junior Achievement of Greater Washington

Mr. Alan Jones
IT Teacher
Marshall Academy

Mr. Michael Lefebvre
Cyber security Strategist
Northrop Grumman

Mr. Jeff McFarland
Academy Administrator
Marshall Academy

Dr. Diane Murphy
IT Professor
Marymount University

Mr. Jay Pearson
Principal
George C. Marshall High School

Mr. Jason Simeon
IT Teacher
Marshall Academy

Mrs. Susan L. Wagner
Education Specialist
Instructional Services
Career and Technical Education

Mr.Ryan Walters
President & CEO
TerraWi

Mr. Dave Watnee
President
Watnee LLC

Mrs. Marie Zwickert
Business Deverlopment Manager
CISCO Systems

George C. Marshall High School

FAIRFAX COUNTY
PUBLIC SCHOOLS

7731 Leesburg Pike
Falls Church, Virginia 22043

MEMORANDUM OF AGREEMENT BETWEEN PARNER AND THE GOVERNOR'S STEM ACADEMY AT MARSHALL HIGH SCHOOL

PARTNERS AND THE GOVERNOR'S STEM ACADEMY AT MARSHALL HIGH SCHOOL agree to enter into this Agreement to support the Academy's Career & Technical Education programs that will advance STEM and IT careers. The Academy will provide enhanced learning opportunities necessary for a successful transition into postsecondary education or the 21 century work place. The program will focus on the development and assessment of Workplace Readiness Skills, college readiness, industry certifications, and developing in demand skill sets needed in today's workplace.

MOA TIMEFRAME:

The MEMORADUM OF AGREEMENT period shall be June 1, 2013 through June 30, 2015 and will be extended annually unless modified or terminated by a partner.

PARTNERS' AGREEMENTS:

The Governor's STEM Academy agrees to:

- Facilitate the mission and workings of the Academy Advisory/Planning Committee
- Provide and monitor comprehensive programs of studies in STEM, and Information Technology
- Assure that curriculum is aligned with career pathways that meet the requirements for the Governor's Exemplary Standard Award Program, Workplace Readiness Skills for the Commonwealth of Virginia, and the Virginia Standard or Advanced Diplomas with CTE Seal
- Deliver counseling and other services that promote STEM education, career pathways, educational advancement and employment opportunities
- Provide documentation and information as requested by Virginia Department of Education for A Governor's STEM Academy
- Assist in securing the necessary equipment, software, and technical support to facilitate Instruction

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

The Planning Committee is an integral component of the establishment and implementation of Marshall Academy, A Governor's STEM Academy. As a member of the Planning/Advisory Committee, I will assist in:

- Identifying the employment needs and opportunities in Northern Virginia STEM industries.
- Providing guidance in the development of curriculum and course offerings relating to STEM.
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- Providing opportunities for site visits when possible to expose students to STEM work settings and STEM employees.
- Participating as possible in STEM activities and programs that further the goals of the STEM Academy.

By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization George C. Marshall HS

Signature: Cindy A Blakeley

Title: Director of Student Services

Date: 4/2/13

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization SySTEMiC Solutions

Signature: Charles H. Brice

Title: STEM Education Coordinator

Date: 4-18-13

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Marshall Academy

Signature: _____

Title: Career Experience Specialist

Date: March 20, 2013

CASAPIT

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

The Planning Committee is an integral component of the establishment and implementation of Marshall Academy, A Governor's STEM Academy. As a member of the Planning/Advisory Committee, I will assist in:

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Fairfax County Public School

Signature: [illegible]

Title: Technology + Engineering Education Program Manager

Date: 14 March 2013

Planning/Advisory Committee Agreement

Marshall Academy Governor's STEM Academy

The Planning Committee is an integral component of the establishment and implementation of Marshall Academy, A Governor's STEM Academy. As a member of the Planning/Advisory Committee, I will assist in:

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Name of Partner Organization: Virginia Polytechnic Institute and State University

Signature:

Title: JOHN C. RUDD
ASST VP – SPONSORED PROGRAMS ADM.

Date: 2/26/2013

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization: George Mason University

Signature: Louis R. D'Alessandro

Title: cisco Academy Support & Training Center Manager

Date: March 18, 2013P

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Instructional Services

Signature: Ed Downey

Title: Coordinator

Date: 3/15/13

Planning/Advisory Committee Agreement

Marshall Academy Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization:

FAIRFAX COUNTY PUBLIC SCHOOL SYSTEM

Signature:

Title:

TECHNOLOGY SUPPORT SPECIALIST

Date:

2/19/2013

Planning/Advisory Committee Agreement

Marshall Academy Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization: Chris Gardner for Positek.net LLC

Signature:

Title: CEO & Chief Technology Officer

Date: 2-20-2013

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization FCPS

Signature: Ann Haulner

Title: Marshall Academy School Counselor

Date: 3/14/13

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Stepnanie Holt - FCPS

Signature: Stephanie Holt

Title: Business and IT program manager

Date: 4/17/13

Planning/Advisory Committee Agreement

Marshall Academy Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization: TYSONS REGIONAL CHAMBER OF COMMERCE (TRCC)

Signature: Joe Huffman

Title: President

Date: 2/28/2013

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Marshall Academy

Signature: Anna Clayen

Title: ESOL Teacher

Date: 3/20/13

Planning/Advisory Committee Agreement

Marshall Academy Governor's STEM Academy

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization: Junior Achievement of Greater Washington

Signature: Elyssa M. Jeter

Title: Director, Northern Virginia Programs

Date: March 4, 2013

Planning/Advisory Committee Agreement

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Marshall Academy

Signature: [illegible]

Title: Net Acad Teacher

Date: 3/21/13

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

The Planning Committee is an integral component of the establishment and implementation of Marshall Academy, A Governor's STEM Academy. As a member of the Planning/Advisory Committee, I will assist in:

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Independent Consultant

Signature: Michael Rifelin

Title: Consultant

Date: 14 MARCH 2013

Planning/Advisory Committee Agreement

Marshall High School, A Governor's STEM Academy

The Planning Committee is an integral component of the establishment and implementation of Marshall Academy, A Governor's STEM Academy. As a member of the Planning/Advisory Committee, I will assist in:

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Marshall Academy / FCPS

Signature: [illegible]

Title: Administrator

Date: 3/20/13

Planning/Advisory Committee Agreement

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Marymount University

Signature: [illegible]

Title: Professor

Date: 3/16/2013

Planning/Advisory Committee Agreement

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization MARSHALL HIGH SCHOOL

Signature: _____

Title: PRINCIPAL

Date: 3-20-2013

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Name of Partner Organization Marshall Academy

Signature: _____

Title: Teacher - Computer Systems Technology A+

Date: 3/20/2013

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Name of Partner Organization: Career and Technical Education Office- FCPS

Signature: P.L. Wagoner

Title: Education Specialist, Instructional Technology

Date: March 19, 2013

Planning/Advisory Committee Agreement

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization: Terra Wi

Signature: G Wa

Title: CEO + President

Date: 19 Feb 13

Planning/Advisory Committee Agreement

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization: ***Cisco Systems, Inc.***

Signature: ***Marie Zwickert***

Title: ***Business Development Manager***

Date: ***March 15, 2013***

Planning/Advisory Committee Agreement

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By signing this agreement, I agree to actively participate on Marshall Academy's Governor's STEM Academy/Planning Advisory Committee.

Name of Partner Organization Watnee LLC

Signature: David M. Watnee

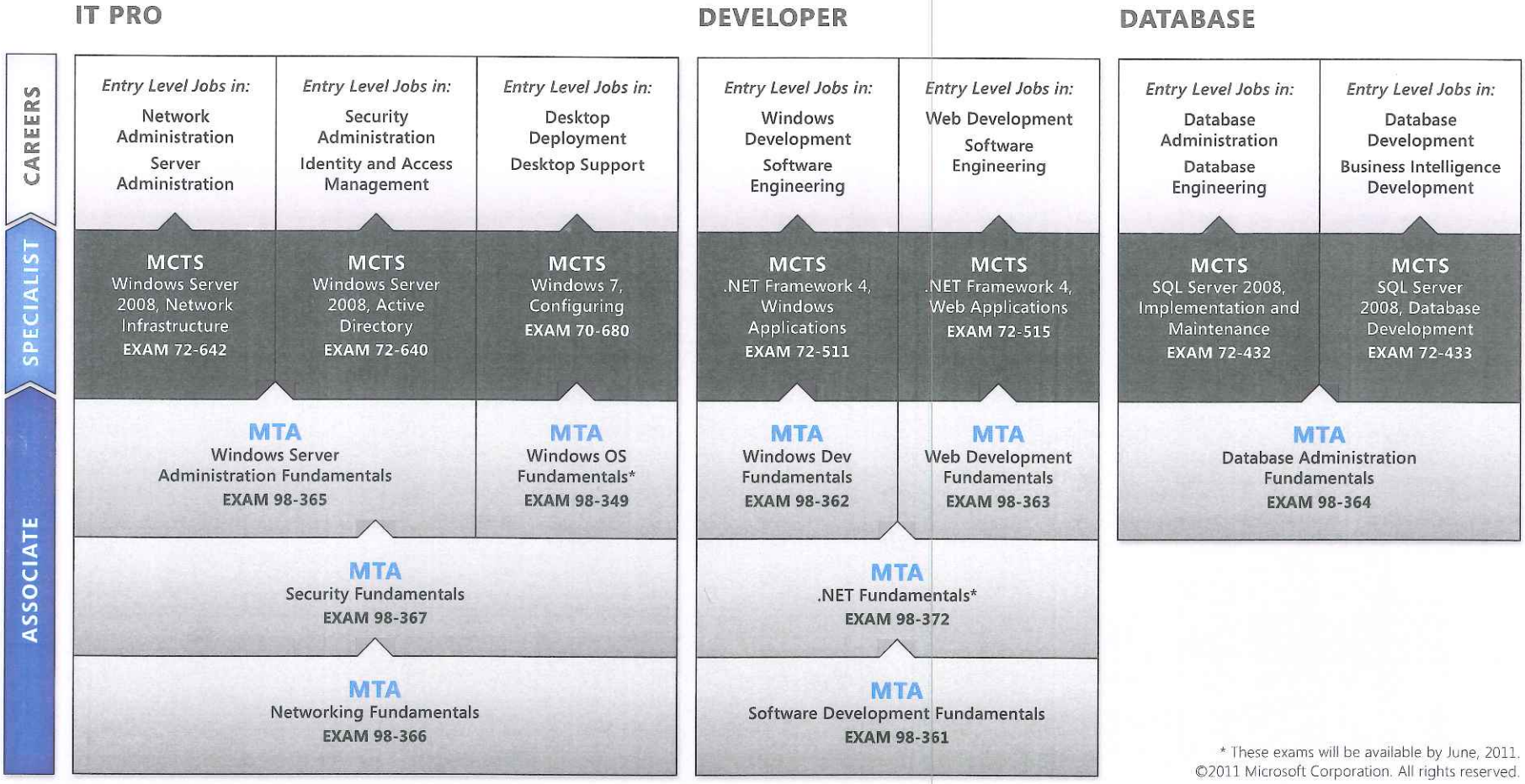
Title: President

Date: 4/4/2013

Appendix I:
Industry Certifications

Microsoft Technology Associate Certification Paths

MTA is the first step in the Microsoft Technology Certification Series. MTA is a recommended but not required pre-requisite to MCTS exams. Each MTA exam carries it's own certification.



* These exams will be available by June, 2011.

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For full Microsoft Certification roadmaps, visit **http://www.microsoft.com/learning/certification**

CompTIA IT Certification Roadmap

http://certification.comptia.org/certroadmap

BEGINNER/NOVICE | INTERMEDIATE | ADVANCED | SPECIALIST | EXPERT

A Career in:

Project Management
- Work Experience
- CAPM
- IPMA (D) / GPM
- CompTIA Project +
- Prince 2 Foundation
- IPMA (C)
- IPMA (B)
- PMP
- IPMA (A)
- Prince 2 Practitioner

IT Skills for Office Productivity
- IC³
- ECDL / ICDL
- MOS
- MOS Master
- ECDL / ICDL Advanced

Software Architecture
- MTA Developer
- MCTS
- OCJA
- OCPJP
- OCMJD
- OCMJEA
- MCA

Service/Help Desk
- CompTIA Healthcare IT Technician
- ITIL Intermediate
- ITIL Expert
- MCITP Consumer
- CompTIA RFID+
- MCITP Enterprise Admin
- ITIL Master

Database Administration
- CompTIA Strata IT Fundamentals
- MTA Database Admin
- OCA
- OCP
- MCM
- OCM
- CompTIA PDI+
- ITIL Foundations
- MCITP Database Admin

Network Administration
- MCSA
- MCITP Server Admin
- MTA Network / Server
- CompTIA Network+
- CompTIA Linux+ powered by LPI
- LPIC-1
- CompTIA Server+
- CompTIA Storage+
- RHCSA
- CNA / CLP
- CCNA / CCDA
- RHCE
- MCSA
- LPIC-2
- CCA
- CNE / CLE
- CCDP / CCNP
- RHCA
- MCSE
- CCEA
- MCITP Enterprise Admin
- MCNE
- CCIE
- MCM
- LPIC-3

Security
- CompTIA A+
- MCTS Windows
- CompTIA Security+
- GSEC
- GISP
- CASP
- MCSE Security
- CEH / CHFI
- CCSP
- GCIH
- CISA
- CCIA
- CISM
- CGEIT
- CCIE
- CISSP

Networking
- MTA Security
- MCM / MCA
- CCIE

Training
- CompTIA Green IT
- CompTIA Cloud Essentials
- CCENT
- CCNA
- CCNP
- CNI
- CompTIA CTT+
- MCT

Product or topic-related knowledge

COMPTIA CERTIFICATIONS

CompTIA Strata	CompTIA Server+	CompTIA RFID+	CompTIA PDI+	CompTIA Cloud Essentials
CompTIA A+	CompTIA Security+	CompTIA Linux+ Powered by LPI	CompTIA Storage+	CompTIA Healthcare IT Technician
CompTIA Network+	CompTIA CTT+	CompTIA Project+	CompTIA Green IT	CASP (CompTIA Advanced Security Practitioner)

Certifications legend continued on back

CompTIA IT Certification Roadmap Legend

http://certification.comptia.org/certroadmap

COMPTIA CERTIFICATIONS

CompTIA Strata
CompTIA A+
CompTIA Network+
CompTIA Server+
CompTIA Security+
CompTIA CTT+
CompTIA RFID+
CompTIA Linux+ Powered by LPI
CompTIA Project+
CompTIA PDI+
CompTIA Storage+
CompTIA Green IT
CompTIA Cloud Essentials
CompTIA Healthcare IT Technician
CASP (CompTIA Advanced Security Practitioner)
http://certification.comptia.org/getCertified/certifications/a.aspx

EUROPEAN COMPUTER DRIVING LICENSE FOUNDATION

ECDL/ICDL - European Computer Driving License
ECDL/ICDL - European Computer Driving License Master
http://www.ecdl.org/programmes

CERTIPORT CERTIFICATIONS

IC³ - Internet and Computing Core Certification
http://www.certiport.com

CISCO SYSTEMS CERTIFICATIONS

CCENT - Cisco Certified Entry Networking Technician
CCDA - Cisco Certified Design Associate
CCNA - Cisco Certified Network Associate
CCNP - Cisco Certified Network Professional
CCSP - Cisco Certified Security Professional
CCDP - Cisco Certified Design Professional
CCIE - Cisco Certified Internetwork Expert
http://www.cisco.com/web/learning/index.html

CITRIX CERTIFICATIONS

CCA - Citrix Certified Administrator
CCEA - Citrix Certified Enterprise Engineer
CCIA - Citrix Certified Integration Architect
http://www.citrixtraining.com/content/index.cfm/cgroup_id:93

EC-COUNCIL

CEH - Certified Ethical Hacker
CHFI - Computer Hacking Forensic Investigator
https://www.eccouncil.org/certification/certified_ethical_hacker.aspx

INTERNATIONAL PROJECT MANAGEMENT ASSOCIATION (IPMA)

PMA Level A - Certified Projects Director
IPMA Level B - Certified Senior Project Manager
IPMA Level C - Certified Project Manager
IPMA Level D - Certified Project Management Associate
http://www.ipma.ch/certification/

ISACA (Information Systems Audit & Control Assn.)

CISA - Certified Information Systems Auditor
CISM - Certified Information Security Manager
http://www.isaca.org/CERTIFICATION/Pages/default.aspx

ISC²

CGEIT - Certified in the Governance of Enterprise IT
http://www.isaca.org/CERTIFICATION/Pages/default.aspx
CISSP - Certified Information Systems Security Professional
https://www.isc2.org/cissp/default.aspx

ITIL CERTIFICATIONS

ITIL V3 Foundations
ITIL V3 Intermediate
ITIL V3 Expert
ITIL V3 Master
http://www.itil-officialsite.com/

LINUX PROFESSIONAL INSTITUTE CERTIFICATIONS

LPIC-1 - Junior Level Linux Professional
LPIC-2 - Advanced Level Linux Professional
LPIC-3 - Senior Level Linux Professional
http://www.lpi.org/eng/certification/the_lpic_program

MICROSOFT CERTIFICATIONS

MOS - Microsoft Office Specialist
MOS Master - Microsoft Office Specialist Master
MCITP Consumer - Microsoft Certified IT Professional: Consumer Support Technician
MCITP - Enterprise Admin Microsoft Certified IT Professional: Enterprise Administrator
MCITP - Database Admin Microsoft Certified IT Professional: Database Administrator
MCITP - Server Admin Microsoft Certified IT Professional: Server Administrator
MCSA - Microsoft Certified Systems Administrator
MCSE - Microsoft Certified Systems Engineer
MCSE - Security Microsoft Certified Systems Engineer Security
MCA - Microsoft Certified Architect
MCT - Microsoft Certified Trainer
MCTS - Microsoft Certified Technology Specialist
MTA - Microsoft Technology Associate
MTA - Security Microsoft Technology Associate Security Fundamentals
MTA - Networking / Server Microsoft Technology Associate Networking Fundamentals / Windows Server Administration Fundamentals
MTA - Database Admin Microsoft Technology Associate Database Administration Fundamentals
MTA - Developer Microsoft Technology Associate Development Fundamentals
MCM - Microsoft Certified Master
http://www.microsoft.com/learning/en/us/default.aspx

NOVELL / SUSE CERTIFICATIONS

CNA - Certified Novell Administrator
CNE - Certified Novell Engineer
MCNE - Master Certified Novell Engineer
CNI - Certified Novell Instructor
CLP - Novell Certified Linux Professional 11
CLE - Novell Certified Linux Engineer 10
http://www.novell.com/training/certinfo/

OGC (OFFICE OF GOVERNMENT COMMERCE) CERTIFICATIONS

PRINCE2 Foundation - Projects in Controlled Environments
PRINCE2 Practitioner - Projects in Controlled Environments
http://www.ogc.gov.uk/

ORACLE CERTIFICATIONS

OCA - Oracle Certified Associate
OCP - Oracle Certified Professional
OCM - Oracle Certified Master
OCJA - Oracle Certified Associate, Java SE 6/SE 5
OCPJP - Oracle Certified Professional, Java SE 6/SE 5 Programmer
OCMJD - Oracle Certified Master, Java SE6 Developer
OCMJEA - Oracle Certified Master, Java EE 5 Enterprise Architect
http://education.oracle.com

PROJECT MANAGEMENT INSTITUTE (PMI) CERTIFICATIONS

CAPM - Certified Associate in Project Management
PMP - Project Management Professional
http://www.pmi.org

RED HAT CERTIFICATIONS

RHCSA - Red Hat Certified System Administrator
RHCE - Red Hat Certified Engineer
RHCA - Red Hat Certified Architect
http://www.redhat.com/certification/

SANS (GIAC) CERTIFICATIONS

GCIH - GIAC Certified Incident Handler
GSEC - GIAC Security Essentials Certification
GISP - GIAC Information
http://www.giac.org/certifications

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Part #: Certification_Roadmap_Grey_with_Color_US_Online_848A-US

FAIRFAX COUNTY PUBLIC SCHOOLS
CAREER AND TECHNICAL EDUCATION
INDUSTRY CERTIFICATION / LICENSURE AVAILABLE

Effective September 2011

Some of the following industry certifications and licensures may be used as a "Student Selected Verified Credit" *to fulfill FCPS graduation requirements. Each verified credit requires a separate SOL test, substitute test, license, or certification.*

CTE Curriculum Program Area	***CTE Course(s)***	***Certification or Industry Recognized Test***	***Certifying Agency***	***Verified Credit***
Business and Information Technology	All High School Business Courses (with the exception of Business Law and Business Management)	IC3 Microsoft Office Specialist (MOS)	Certiport Certiport	Yes
Business and Information Technology	A+	A+ Computer Technician IC3	Computer Technology Industry Association (ComTIA) Certiport	Yes
Business and Information Technology	Accounting; Advanced Accounting	Accounting (Basic) Accounting (Complete)	NOCTI	Yes
Business and Information Technology	Cisco	Cisco CCNA Academy Certificate IC3	Cisco Systems Certiport	Yes
Business and Information Technology	Design, Multimedia and Web Technologies; Web Page Development	Adobe CS in Dreamweaver, Flash, Photoshop	Certiport	Yes
Business and Information Technology	Economics and Personal Finance	W!SE	W!SE	Yes
Business and Information Technology	Oracle	Oracle Certification Program Examinations Certified Internet Webmaster (CIW) Design Series IC3 Microsoft Office Specialist (MOS)	Oracle CIW Certiport Certiport	Yes
Business and Information Technology	Network Administration (Microsoft)	Microsoft Certified Professional (MCP) IC3 Microsoft Office Specialist (MOS)	Prometric Certiport Certiport	Yes
Family and Consumer Sciences	Culinary Arts	Career Safe 10 Hour Card Certification	OSHA	No
Family and Consumer Sciences	Culinary Arts	Food Handler Certification (ServSafe)	National Restaurant Association	No
Family and Consumer Sciences	Culinary Arts II	Culinary Arts Cook Level 2	National Occupational Competency Testing Institute (NOCTI)	Yes

FAIRFAX COUNTY PUBLIC SCHOOLS
CAREER AND TECHNICAL EDUCATION
INDUSTRY CERTIFICATION / LICENSURE AVAILABLE

Effective September 2011

CTE Curriculum Program Area	*CTE Course(s)*	*Certification or Industry Recognized Test*	*Certifying Agency*	*Verified Credit*
Family and Consumer Sciences	Early Childhood Careers II	Early Childhood Care and Education Assessment	NOCTI	Yes
Family and Consumer Sciences	Fashion Design II	Fashion, Textiles, and Apparel Examination	AAFCS	Yes
Family and Consumer Sciences	Teacher Cadet	Education and Training Assessment	NOCTI	Yes
Health & Medical Sciences	All Health and Medical Science classes	Career Safe 10 Hour Card Certification	OSHA	No
Health & Medical Sciences	Animal Science 2	Certified Veterinary Assistant (CVA)	Texas Veterinary Medical Association and Animal Care Technologies	No
Health & Medical Sciences	Exploring Health Sciences Fire and Emergency Medical Sciences Medical Assistant	Cardiopulmonary Resuscitation (CPR) (AED) for the Professional Rescuer	American Heart Association	No
Health & Medical Sciences	Medical Assistant	First Aid	American Heart Association	No
Health & Medical Sciences	Fire and Emergency Medical Sciences	Bloodborne Pathogens	OSHA	No
Health & Medical Sciences	Fire and Emergency Medical Sciences	Community Emergency Response Team (CERT)	FEMA	No
Health & Medical Sciences				No
Health & Medical Sciences	Fire and Emergency Medical Sciences	Emergency Medical Technician-Basic (EMTB)	Department of Health, Office of Emergency Medical Services	Yes
Health & Medical Sciences	Fire and Emergency Medical Sciences	Hazardous Materials Response	U.S. Department of Transportation	No
Health & Medical Sciences	Pharmacy Technician	Pharmacy Technician	Virginia State Board of Pharmacy	Yes
Health & Medical Sciences	Postsecondary Practical Nursing	Licensed Practical Nurse (LPN)	Virginia Board of Nursing	No
Marketing	All Marketing and EFE classes	Career Safe 10 Hour Card Certification	OSHA	No
Marketing	All Marketing and EFE classes	National Professional Certification in Customer Service	National Retail Federation	Yes
Marketing	All Marketing and EFE classes	National Professional Certification in Sales	National Retail Federation	Yes

FAIRFAX COUNTY PUBLIC SCHOOLS
CAREER AND TECHNICAL EDUCATION
INDUSTRY CERTIFICATION / LICENSURE AVAILABLE

Effective September 2011

CTE Curriculum Program Area	*CTE Course(s)*	*Certification or Industry Recognized Test*	*Certifying Agency*	*Verified Credit*
Technology Education	Advanced Drawing; Architecture Drawing; Engineering Drawing	Computer Assisted Drawing (CAD) 2004 Certification	Brainbench/Previsor	Yes
Technology Education	Research and Development Engineering, Engineering Systems 2	Pre- Engineering/Engineering Technology	NOCTI	yes
Technology Education	Electronics 2, Electronics 3	Electronics Technology	NOCTI	yes
Trade & Industrial	Construction Technologies; Electrical Construction and Engineering; Heating, Ventilation, Air Conditioning, and Refrigeration; Landscape Architecture & Turf Management	Career Safe 10 Hour Card Certification	OSHA	No
Trade & Industrial	All T & I classes	Career Safe 5 Hour Card Certification	OSHA	No
Trade & Industrial	Automotive Collision 1	EXT 01 – Exterior Panel Repair and Replacement Steel and Plastic	I-CAR	No
Trade & Industrial	Automotive Collision 2	REF 01 – Refinishing Program 1 (spry guns and tools) REF 02 – Refinishing Program 2 (surface prep) REF 04 – Refinishing Program 4 (detailing)	I-CAR	No
Trade & Industrial	Automotive Technology	NASSSA End of Course Exam (available in 8 areas: Automatic Transmission, Brakes, Electrical, Engine Performance, Engine Repair, Heating and AC, Manual Drive Train, Steering and Suspension)	National Automotive Student Skills Standards Assessments (NASSSA	Yes (pass any 1 exam)
Trade & Industrial	Construction Technologies	Carpentry Level 1 Apprenticeship – Core 8065	Virginia Department of Occupation Regulation (VDOR)	No
Trade & Industrial	Construction Technologies	Carpentry	SkillsUSA Work Force Ready	Yes
Trade & Industrial	Cosmetology	Cosmetology License	Virginia Board of Cosmetology	Yes
Trade & Industrial	Criminal Justice	Criminal Justice – Law Enforcement	SkillsUSA Work Force Ready	Yes
Trade & Industrial	Electrical Construction and Engineering 1	Electrical Apprenticeship Exam Level 1	Virginia Department of Labor & Industry	No
Trade & Industrial	Electrical Construction and Engineering 2	Electrical Apprenticeship Exam Level 2	Virginia Department of Labor & Industry	No

FAIRFAX COUNTY PUBLIC SCHOOLS
CAREER AND TECHNICAL EDUCATION
INDUSTRY CERTIFICATION / LICENSURE AVAILABLE

Effective September 2011

CTE Curriculum Program Area	*CTE Course(s)*	*Certification or Industry Recognized Test*	*Certifying Agency*	*Verified Credit*
Trade & Industrial	Electrical Construction and Engineering	Residential Electrical	SkillsUSA Work Force Ready	Yes
Trade & Industrial	Heating, Ventilation, Air Conditioning, And Refrigeration	EPA Technician Certification (Levels 1, 2, 3)	Environmental Protection Agency	Yes
Trade & Industrial	Heating, Ventilation, Air Conditioning, And Refrigeration	HVAC Excellence Heat	HVAC Excellence	Yes
Trade & Industrial	Heating, Ventilation, Air Conditioning, And Refrigeration	Residential Air Conditioning and Heating Certification (ARI) HVAC Apprenticeship Exam Level 1 HVAC Apprenticeship Exam Level 2 HVAC Excellence Exam	Air Conditioning and Refrigeration Institute (ARI)	Yes
Trade & Industrial	Landscape Architecture and Turf Management	Landscaping	SkillsUSA Work Force Ready	Yes
Trade & Industrial	Professional Graphic Studio	Visual Communication	SkillsUSA Work Force Ready	Yes
Trade & Industrial	Professional Photography	Adobe Photoshop	SkillsUSA Work Force Ready	Yes
Trade & Industrial	Professional Television Production	Television Broadcasting	SkillsUSA Work Force Ready	Yes

Appendix J:

NOVA Dual Enrollment Agreement

Dual Enrollment Contract
Between
Northern Virginia Community College
and
Fairfax County Public Schools

The purpose of this Agreement is to set out the terms and conditions upon which courses will be offered under the "Virginia Plan for Dual Enrollment Between Virginia Public Schools and Community Colleges" pursuant to §§22.1-253.13:1(D)(10) and 23-9.2:3.02(G) of the *Code of Virginia*, which becomes effective July 1, 2012. The purpose of this offering is to allow high school students to take college-level courses and receive both college credit and high school credit towards graduation. This Agreement will be in effect July 1, 2012 – June 30, 2013 unless one of the parties wishes to terminate it. If either party wishes to terminate this Agreement, a written notice must be provided to the other party **within 90 days** of the requested termination date. Termination will not take place until dual enrollment courses in progress are completed. Addenda to this agreement will be reviewed annually by both parties.

Each party does hereby agree to the following:

1. Offerings

   To the extent possible, when requested by school officials, Northern Virginia Community College, (herein after "the College") will make available college-level courses to students of Fairfax County Public Schools, (herein after the "System.") Developmental and physical education courses will not be included in dual enrollment offerings.

   The "Host School" refers to the individual high school that is sponsoring dual enrolled course(s) through the College.

   The courses to be offered will be established by mutual agreement of both parties for the fall and spring semesters. Each academic year, a list of courses will be negotiated *(see Addendum 2)* and is hereby incorporated into this Agreement. Students will be given the option to complete an associate's degree or a one-year Uniform Certificate of General Studies concurrent with receiving a high school diploma. The credit available for each dual enrollment course and Advanced Placement courses, which a student will earn with a qualifying exam score of three or higher, is listed in *Attachment A*, hereby incorporated herein.

   The responsibilities of the parties pursuant to this Agreement are conditional upon student registration for the course(s) being completed and subject to adequate student enrollment as determined by the College. The College and Host School reserve the right to cancel any class sections or add sections, no later than the census date for the class as determined by the College.

2. Tuition & Fees

All students enrolled in dual enrollment classes shall be charged tuition and fees at the in-state rate as established by the State Board for Community Colleges for the College and in effect at the time classes begin. Pursuant to the Virginia Plan for Dual Enrollment, schools and colleges are encouraged to provide high school students the opportunity for dual enrollment at no cost to them or their families. However, if the Host School charges students the dual enrolled rate for the class, the Host School will pay the College on the students' behalf.

3. Textbooks

The College will determine the textbooks used in dual enrollment courses. The Host School will determine if the students will be responsible to purchase the required textbooks or if the textbooks will be provided by the Host School.

4. Payment for Other Services

Fees and reimbursement for other costs and services will be determined by mutual consent of the Host School and the College per Addendum 1, which is hereby incorporated herein and made a part of this Agreement. A yearly Addendum will be sent to the System with changes in tuition and other agreed upon charges.

5. Faculty

a. Authority to Select/Hire

The selection and supervision of instructional faculty for all community college courses covered by this Agreement will be the responsibility of the College. The Host School may recommend qualified teachers who are interested in teaching in the dual enrollment program to the College for consideration. Each faculty member teaching in the dual enrollment program shall be a member of the college's full-time or part-time faculty and may also be an employee of the Host School.

Dual enrollment course faculty must meet the minimum credentialing requirements set forth in Attachment 1, Requirements for Faculty Teaching Contract Dual Enrollment Classes, Attachment 2, Form VCCS-29, and the Commission on Colleges of the Southern Association of Colleges and Schools.

b. Payment

If the instructor for dual enrollment course(s) is employed full time by the Host School and the course(s) is/are part of the assigned teaching workload, the College will not provide direct compensation to the instructor nor assess a charge for the instructor. If, however, the College employs an instructor who is not affiliated with the Host School, the College will compensate the faculty member directly and the Host School will be charged a fee based on the number of course credits. Direct reimbursement will be in accordance with the Virginia Community College System approved lecturer rates depending on qualifications of the instructor and will occur no later than the end of the semester of the course. Other reimbursement procedures, mutually agreeable to both the College and the System, can also be implemented as an alternative, if evidenced in writing by the parties.

c. Faculty Responsibilities

Instructors will be expected to conform to College policies for the dual enrollment courses they teach, such as preparing course syllabi according to the approved College format, verifying class rosters, taking attendance, and providing final grades at the end of the semester.

The instructor will provide 750 minutes of instruction for each lecture credit or lab contact hour per semester to (System/host school) students enrolled in college courses under this Agreement. In addition, the instructor will provide a maximum of 150 minutes for testing and evaluation for each course.

Online end-of-course student evaluations will be conducted for each course offered through the dual enrollment program. Results of the student evaluations will be compiled and shared with the dean, program head/assistant dean, dual enrollment instructor, and designated System representative.

6. Students Selection and Eligibility to Participate in Dual Enrollment Program

   a. In order to be eligible to participate in the Dual Enrollment Program, high school students must be high school juniors or seniors, must have permission of their parent or guardian to participate, be recommended by their high school principal to cross register, and meet course prerequisites. These permissions are documented by submission of the College form 125-209 for each student.

   b. Students must meet admission and course placement requirements of the College. Admission requirements include the completion of an application for admission to the College, and the completion and receipt of satisfactory scores on the college's placement tests. In order to take ENG 111, students must place into ENG 111 College Composition I; to take college courses designed to transfer other than English, students must place into ENG 111 + ENG 9 Individualized Instruction in Writing or higher; and to take courses not primarily designed to transfer, students must place into ENG 1 Preparing for College Writing I and ENG 4 Preparing for College Reading I or higher.

   c. For dual enrollment courses that commonly transfer, all students in the class must be dual enrolled and take the class for college credit. For dual enrollment courses that do not commonly transfer, it is highly recommended that all students take the class for college credit.

   d. Exceptions to the policies established in 6.a, 6.b., and 6.c regarding student eligibility may be made on a case-by-case basis with the approval of the public school superintendent and appropriate College officials, so long as such exceptions are in accordance with the VCCS Policy Manual and College policies.

7. College Administrative Responsibilities

   a. The College, through its instructor(s), will provide the appropriate Host School officials with progress reports on each student from time to time as shall be agreed by the contracting System and College. At the conclusion of each college academic term, the student will receive a college grade for each course in which he/she was registered and such grades will become part of the student's permanent college record.

   b. A record will be maintained by the College for each student in the Dual Enrollment Program as a part of the permanent college record maintained by the College's Admissions and Records office.

   c. The College will send transcripts to colleges/universities upon a student's request.

d. The College will conduct faculty observations for its employees who act as dual enrollment instructors each semester using the College guidelines adopted for all adjunct faculty members. A copy of the observation results will be submitted to the designated System representative. The College will retain the evaluations in electronic or paper format for audit purposes.

8. High School Administrative Responsibilities

Each Host School will verify enrollments in each class section, and instructors will report grades to the College within a prescribed period of time, according to established College procedures.

9. Award of Credit

College and high school credit shall be awarded to the participating high school student upon successful completion of the course.

10. Course Standards

a. Course Equivalency, Evaluation, and Assessment

Assessment has long been recognized in Virginia as an important aspect of an effective instructional program. In this spirit, all dual enrollment courses developed and implemented under the auspices of the Virginia Plan for Dual Enrollment and this Agreement shall include a formal mechanism for evaluation. The College has the responsibility to ensure that all dual enrollment courses taught are equivalent to other instruction offered by the College, specifically in terms of course placement and pre-requisites, course objectives, components of the syllabi, level and rigor of content, evaluation of students, textbooks, student outcomes and assessment and faculty evaluation. Instructors of all dual enrollment courses will follow the College course content summary for each course and will require the same texts as are required on campus.

b. Modifications of Policies

Modifications of on-campus policies, procedures, and rules appropriate to the high school setting may be agreed to by the parties in writing before each term begins.

c. Student Performance

Students wishing to take a dual enrolled class must score appropriately on the College placement test and have completed any prerequisite courses.

The College reserves the right to advise the student, parents, and Host School that the student does not have sufficient skills or abilities to continue in the courses selected during/ after the first semester.

The deadline date for adding/dropping classes (defined as the "census date") will be set by the College in accordance with Virginia Community College System policy. Withdrawing from classes after this adjustment period will be allowed without academic penalty within the first 60% of the session and students will receive a grade of W. Withdrawal after the first 60% of the session will result in a grade of F except under mitigating circumstances that must be documented on the course withdrawal form and approved by the instructor and the division dean.

11. Agreement Implementation Contacts

    Contact persons for this agreement are:

    Host School: The school principal / designee

    College: The Coordinator for Dual Enrollment dualenrollment@nvcc.edu and the division dean sponsoring any given course

12. Transferability

    Normally, academic courses intended for transfer with a grade of "C" or above will transfer to institutions of higher education. However, no guarantee can be made to students regarding transferability to all colleges and universities. Community college career-technical course credits earned are applicable to specific curricula and are intended to prepare students for employment in those areas. While some of these courses may be accepted for transfer, no unified policy on the transfer of VCCS courses exists. The System should advise students to consult with transfer institutions in order to determine if their courses will be accepted for transfer.

13. The College reserves the right to enroll other students in the courses subject to this contract when those courses are offered on the College's campus or sites not at the Host School.

14. Each party will be responsible for liability coverage of its employees and agents in fulfilling its responsibilities under this Agreement, to the extent authorized by law.

15. The College or the System shall not unlawfully discriminate on the basis of race, nationality, ethnicity, religion, gender, age, or disability in any undertaking pursuant to this Contract. Disabled students will continue to receive appropriate accommodations through the System pursuant to the Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C §1400. Modification in course requirements will not be made for students taking dual enrolled courses at the Host School or on the College campus.

16. Nothing herein shall be construed as a waiver of the sovereign immunity of the Commonwealth of Virginia or the assumption of any liability contrary to Virginia law.

Signatures:

By: 9-4-12

Dr. Robert G. Templin, Jr. Date
President
Northern Virginia Community College

10/12/2012

Dr. Jack Dale Date
Superintendent
Fairfax County Public Schools

Revised June 2012

Attachments:

Attachment 1 Transferable Credits Earned While in High School

Attachment 2 Requirements for Faculty Teaching Contract Dual Enrollment Classes

Attachment 3 Form VCCS-29

Addendum 1 Tuition, Fees, and Billing for Current Year

Addendum 2 List of Proposed Contract Dual Enrollment Courses for Current School Year

ATTACHMENT I

EARNING COLLEGE CREDIT IN HIGH SCHOOL

This chart shows the requirements of the high school diploma and an Associate Degree in General Studies in the beginning and ending column. In between are the AP / IB and dual enrolled courses that can be used to earn college credit. DE courses are available to rising junior through senior high school students, unless there is an exceptional sophomore who could benefit.

VDOE Advanced / Standard High School Diploma *(Requirements for first time 9th graders in 2011 and beyond)*	**College credits earned by taking AP course and passing final exam** *(Two year programs allow a score of 3 or higher; Four year institutions usually require a 4 or 5 on AP exams) * Extra credits earned for accepted AP scores may be used to meet the general electives.*	**Dual Enrollment with NOVA: students receive college credits at the end of the course. C or better would most likely transfer to a Virginia college. Students who do not earn a C or better on the first course will not be able to take the second course.**	**College credits earned by taking higher level IB earning credit for either one or two courses depending on the score** *(/ with a score of 5 // with a score of 6-7) * Extra credits earned for good AP scores may be used to meet the general electives.*	**NOVA Associate of Science Degree in General Studies**
		SDV 100 College Success Skills		**SDV 100 College Success Skills** ***(1 credit)***
Health & PE ***2 / 2***	N / A		N/A	**PED 116 Lifetime Fitness and Wellness** ***(1 credit)***
1 additional student selected test for verified credit	AP Computer Science A = CSC 201 AP Computer Science AB = CSC 201-202	ITE 115 Intro to Computer Applications OR CSC 110 Intro to Computing	Computing Studies = / CSC 201 // CSC 201-202	**ITE 115 Intro to Computer Applications OR CSC 110 Intro to Computing** ***(3 credits)***
Fine Arts or CTE ***1 / 1***	AP Art History = ART 101-102 AP Music Theory = MUS 111-112	World Literature: ENG 251-252 OR other Literature courses; Upper Level World Language courses; OR approved Art or Drama courses.	Philosophy = / PHI 101 // PHI 101-102	**Humanities / Fine Arts Elective I & II** ***(6 credits total)***

VDOE High School Diploma	AP Courses	NOVA Dual Enrolled Classes	IB Courses	NOVA AS Degree in General Studies
		Principles of Public Speaking: CST 100 Introduction to Communication: CST 110 Small Group Communication: CST 115 Interpersonal Communication: CST 126 Business & Professional Communication: CST 227 Intercultural Communication: CST 229		**Communication Studies and Theater CST Elective** ***(3 credits)***
English ***4 / 4 credits;*** ***2 verified credits***	AP English Literature OR AP Language & Composition = ENG 111-112	College Composition: ENG 111-112	IB English A1 = / ENG 111 // ENG 111 -112 IB English B = / ENG 111 // ENG 111	**English 111-112 College Composition I & II** ***(3 credits each)***
Mathematics ***4 / 3 credits;*** ***2 / 1 verified credits***	AP Calc AB = MTH 173 AP Calc BC = MTH 173-174 AP Statistics = MTH 241	Math for the Liberal Arts I & II: MTH 151-152 Pre Calculus: MTH 163-164 Vector Calculus: MTH 277 Statistics I & II: MTH 241-242 Differential Equations: MTH 291-292	Mathematics = / MTH 173 // MTH 173-174	**Mathematics, MTH 151 or Higher** ***(3 - 5 credits depending on course)***
Lab Science ***4 / 3 credits;*** ***2 / 1 verified credits***	AP Biology = BIO 101 -102 AP Chemistry = CHM 111-112 AP Physics B = PHY 201-201 AP Environmental Science = ENV 121-122	Biology: BIO 101 -102 Chemistry: CHM 111-112 Physics: PHY 201-202 Environmental Science: ENV 121-122	IB Biology = / BIO 101 // BIO 101-102 IB Chemistry = / CHM 111 // CHM 111-112 IB Physics = / PHY 201 // PHY 201-202	**Physical or Life Science Elective w/Lab I & II** ***(4 credits each course)***
Economics & Personal Finance ***1 / 1***	AP Economics, Macro = ECO 201 AP Economics, Micro = ECO 202	Economics, Macro: ECO 201 Economics, Micro: ECO 202 Personal Finance: FIN 107 *(use these toward the social sciences or general elective requirements on next page)*		

VDOE High School Diploma	AP Courses	NOVA Dual Enrolled Classes	IB Courses	NOVA AS Degree in General Studies

History & Social Sciences
4/3 credits;
2 / 1 verified credits
	AP Human Geography = GEO 210
	AP Psychology = PSY 201-202
	AP US History = HIS 121-122
	AP European History = HIS 101-102
	AP World History = HIS 111-112
	AP US Government = PLS 211-212
	AP US Comparative Government & Politics = PLS 120
	AP US Government & Politics = PLS 135, PLS 211
	AP Economics, Macro = ECO 201
	AP Economics, Micro = ECO 202
		Any Equivalent Economics, Geography, History, Political Science, Psychology, OR Sociology Course	Geography = / GEO 220
			// GEO 220 + GEO elective
			Psychology = / PSY 201 // PSY 201-202
			Social Anthropology = / SOC 211 // SOC 211-212
				Social Science Elective I & II
				(3 credits each)
				AND
				HIS Elective
				(3 credits)

Foreign Language
3 / 2
	AP Chinese Language & Culture = CHI 201-202
	AP French Language = FRE 201-202
	AP French Literature = FRE 233-234
	AP German Language = GER 201-202
	AP Italian Language & Culture = ITA 201-202
	AP Japanese Language & Culture = JPN 201-202
	AP Latin / Literature or Virgil = LAT 101-102 *(only used as general elective for NOVA)*
	AP Russian Language & Culture = RUS 201-202
	AP Spanish Language = SPA 201-202
	AP Spanish Literature = SPA 233 + SPA elective OR SPA 271-272
			French A1 or B = / no credit
			// FRE 201-202
			German A1 or B = / no credit
			// GER 201-202
			Spanish A1 or B = / no credit
			// SPA 201-202
				Humanities / Fine Arts Elective I & II
				(includes foreign language courses)

VDOE High School Diploma	AP Courses	NOVA Dual Enrolled Classes	IB Courses	NOVA AS Degree in General Studies
Fine Arts or CTE ***1 / 1***	AP Art History = ART 101-102 AP Music Theory = MUS 111-112	World Literature: ENG 251-252 OR other Literature courses; Upper Level World Language courses; OR approved Art or Drama courses.	Philosophy = / PHI 101 // PHI 101-102	**Humanities / Fine Arts Elective I & II** ***(6 credits total)***
Electives / Career & Technical Education CTE Sequence ***2 / 6***	AP Credits not used previously; must have a 3 or higher on examination and NOVA must have an equivalent course.	Any courses approved by the college or elective courses not used previously. CTE courses are available in a variety of fields but earned credits may not be transferable to a four year institution.	IB Credits not used previously; must have a score of 5 or better and NOVA must have an equivalent course.	**General Electives** ***(19 credits)***

Attachment 2

Requirements for Faculty Teaching Contract Dual Enrollment Classes

Pursuant to the Agreement to which this Attachment 1 is attached, the College and the System agree as follows:

The College will select, supervise and evaluate instructional faculty for all NOVA courses covered by this Agreement. The Host Schools are encouraged to recommend instructors who meet the College's credentialing criteria (see below) and who are interested in teaching the dual enrollment classes.
Each instructor teaching dual enrollment classes will be credentialed by the College to teach at the college level. This means that if a Host School teacher has the required credentials and will teach a dual enrollment class, the College will recognize that instructor as an adjunct faculty member.
If an instructor is employed full time by the Host School and the course is part of the assigned teaching workload, the College will not charge a faculty fee.

In addition to the credentialing requirements set forth in this Attachment 1, dual enrollment course faculty must meet the minimum credentialing requirements set forth by Form VCCS-29 and the Commission on Colleges of the Southern Association of Colleges and Schools.
All faculty teaching dual enrollment courses will be required to attend faculty orientation and other in-service programs.
The College will evaluate dual enrollment instructors each semester they teach a dual enrollment class.

Minimum Credentialing Criteria for Faculty (VCCS-29):

Faculty who teach courses designed to transfer must have a Master's in field or Master's with 18 graduate semester hours in teaching field. This includes all Humanities, Social Sciences, Natural Sciences, Math and Student Development as well as transferable courses in other fields such as Accounting and IT.

Faculty who teach career-technical courses not designed to transfer must have a Bachelor's in teaching field or Associate's in teaching field with demonstrated competency in teaching field (minimum of 2 years current related occupational experience). This includes Associate of Applied Science or Applied Arts degree fields such as Horticulture, Automotive, and Hospitality Management. Some IT courses fall into this category.

VCCS-29 Normal Minimum Criteria for Each Faculty Rank Effective July 1, 2005

	Faculty in Humanities, Soc. Sciences, Natural Sciences and Math, Developmental Studies, Counselors, Librarian,		*Faculty in Specialized Professional or Technical Associate in Applied Sciences or Arts Degree Fields*		*Faculty in Non-Associate Degree Occupational Fields*	
	Initial Appointment/ Promotions	Promotions	Initial Appointment/ Promotions	Promotions	Initial Appointment/ Promotions	Promotions
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
ASSISTANT INSTRUCTOR	Appointment on a temporary or emergency basis for a period of one year for persons who meet most of the minimum requirements for the instructor rank and who show evidence of being able to complete such requirements within one year. A one-year renewal only of assistant instructor appointment may be considered upon request of the college administrator for a person who is actively pursuing completion of the necessary requirements.					
INSTRUCTOR						
Teaching Effectiveness	Good		Good		Good	
Academic Preparation	Master's in field or Master's w/18 grad. s.h. in teaching field (The minimum requirement for faculty teaching developmental courses at the instructor level is a baccalaureate degree.)		Bachelor's in teaching field or Associate's in teaching field with demonstrated competency in teaching field.		H.S. dip. or equiv. Assoc. or equiv. in teaching field preferred.	
Experience:						
Related Occup. Exp.	0 yrs.		2 yrs.		5 yrs. current exper.	
Total Teaching Exp.	0 yrs.		0 yrs.		0 yrs.	
F/T Community College Experience	0 yrs.		0 yrs.		0 yrs.	
Professional Activities and Contributions	Demonstrates Potential		Demonstrates Potential		Demonstrates Potential	
ASSISTANT PROFESSOR						
Teaching Effectiveness	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Academic Preparation	Master's + 24 grad s.h. (27 grad s.h. in teaching field.)	Master's + 15 grad. s.h. (27 grad. sem. hrs in teaching field)	Bachelor's in teaching field + 24 grad. s.h	Bachelor's in teaching field +15 grad s.h.	Assoc. or equiv. (Major in teaching field)	High school or equiv. + 30 s.h. hrs. toward an Assoc Degree
Experience:						
Related Occup. Exp.	0 yrs.	0 yrs.	2 yrs.	2 yrs.	5 yrs.	5 yrs.
Total Teaching Exp.	0 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.
F/T Community College Experience	0 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.
Professional Activities and Contributions	Good	Good	Good	Good	Good	Good
ASSOCIATE PROFESSOR						
Teaching Effectiveness	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Academic Preparation	Doctorate (36 grad s.h. in teaching field)	Master's + 39 grad. s.h. (36 grad hours in teaching field)	Master's related to teaching field +15 grad s.h.	Master's related to teaching field	Bachelor's related to the teaching field	Assoc. related to the teaching field or equiv. + 30 s.h.
Experience:						
Related Occup. Exp.	0 yrs.	0 yrs.	2 yrs.	2 yrs.	5 yrs.	5 yrs.
Total Teaching Exp.	6 yrs.	6 yrs.	6 yrs.	6 yrs.	6 yrs.	6 yrs.
F/T Community College Experience	0 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.
Professional Activities and Contributions	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Min. VCCS Exp. in Previous Rank	0 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.
PROFESSOR						
Teaching Effectiveness	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Academic Preparation	Doctorate (36 grad s.h. in teaching field)	Doctorate (36 hours in teaching field)	Master's related to teaching field + 36 grad. s.h.	Master's related to teaching field + 36 grad s.h.	Master's related to the teaching field	Master's related to the teaching field
Experience:						
Related Occup. Exp.	0 yrs.	0 yrs.	2 yrs.	2 yrs.	5 yrs.	5 yrs.
Total Teaching Exp.	9 yrs. Post secondary	9 yrs.	9 yrs. Post secondary	9 yrs.	9 yrs. Post secondary	9 yrs.
F/T Community College Experience	0 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.
Professional Activities and Contributions	Exceptional	Excellent	Exceptional	Excellent	Exceptional	Excellent
Min VCCS Exp. in Previous Rank	0 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.

Virginia Community College System
NORMAL MINIMUM CRITERIA FOR EACH FACULTY RANK

Addendum 1

TUITION, FEES, AND BILLING 2012-2013

The purpose of this addendum is to clarify the charges for dual enrollment for the 2012-2013 academic year, and to outline the dual enrollment billing process to be used by the college. All terms and conditions are subject to changes in the College catalog and its administrative policies.

Dual Enrollment Tuition and Fees

The full tuition for a course will be charged by the College for each student in the dual enrollment class. The host school will receive an 85% discount on the cost per credit for the use of its own facility. There will be no faculty charge if a credentialed high school teacher serves as faculty. If the instructor is not a teacher at the host high school, a faculty charge of $950 per credit hour will be applied. This charge will be added to the total invoice amount.

For example, using the in-state tuition and fees for 2012-2013, the chart demonstrates the cost of a course using a *NOVA faculty member versus a high school teacher who is a NOVA adjunct:

Course	# Credits	Cost per Credit	# Students	Sub-total	Facility Discount = 85% of Sub-total	Total Charge	Faculty Charge per Credit	Total Invoice
* SDV 100	1	$ 145.25	10	$1,452.50	$1234.60	$217.90	$950	$1,167.90
SDV 100	1	$145.25	10	$1,452.50	$1234.60	$217.90	$0	$217.90

Billing Process

After one month from the start of the semester, student additions and drops will be considered complete. The Office of Dual Enrollment will send an email to the teacher asking him / her to review the roster(s) and provide any necessary changes. Once approval has initially been given, an electronic roster will be created and emailed to the dual enrollment teacher for review and final approval. When the teacher submits the roster, it will automatically be forwarded to the principal / designee for final approval. When the principal / designee accepts and submits the roster, this demonstrates agreement that the bill for the semester will be based upon the agreed upon rosters.

Based on the signed roster(s), a dual enrollment bill will be created by the College listing each course being taught at the high school. The final cost will reflect 15% of the total in-state tuition and fees and there will be a faculty charge only if the instructor is provided by the College. You will be notified when the tuition and fees are changed by the Virginia Community College System and accordingly, the cost of a credit will be increased while still maintaining the 85% discount.

It is the responsibility of the host school to collect any funds due from students, and the (System/host school) will be responsible for the payment of the bill. Under no circumstances will the College interface directly with individual students in collecting the necessary tuition.

Payment of the dual enrollment bill will be expected within 30 days of receipt of the bill with the intention to have each semester's charges paid before the end of each semester.

Questions about dual enrollment bills should be addressed to the Dual Enrollment Director, Ms. Ruthe Brown. rdbrown@nvcc.edu or 703-919-5983.

Addendum II

Proposed Courses for 2012 - 2013
(Changes may occur if agreed upon by College and host school)

Fall 2012

High School	Course	Credits	Teacher	Campus	Dean	Mentor
Bryant	SDV 100	1	Dierdre Magro*	AL	D. Scott	Delores Scott
Chantilly Acad.	ITN 154	4		MA	D. Martin	Charlene Phillips
Chantilly Acad.	ITN 154	4		MA	D. Martin	Charlene Phillips
Chantilly Acad.	ITN 156	4		MA	D. Martin	Charlene Phillips
Edison Acad.	ITD 132	3		AL	Bruce Bowman	Kevin Reed
Falls Church	ENG 111 T	3		AN	C. Calobrisi	Jean Dubro
Falls Church	ENG 111 T	3		AN	C. Calobrisi	Jean Dubro
Falls Church	ENG 111 T	3	Ari Jones	AN	C. Calobrisi	Jean Dubro
Falls Church	ENG 111 HT	3	Ari Jones	AN	C. Calobrisi	Jean Dubro
Jeb Stuart	ENG 111 T	3	Cheryl Binkley	AL	J. McClellan	Jarrod Waetje
Marshall H.S.	ENG 111 T	3	Tiffany Santana	AN	C. Calobrisi	Jean Dubro
Marshall H.S.	ENG 111 T	3	Tiffany Santana	AN	C. Calobrisi	Jean Dubro
Mount Vernon	ENG 111 T	3		AL	J. McClellan	Jarrod Waetje
Mount Vernon	ENG 111 T	3		AL	J. McClellan	Jarrod Waetje
South Lakes	ENG 111 T	3	Patricia Smith	LO	J. Turner	Stacy Rice
South Lakes	ENG 111 T	3	Larry Ward	LO	J. Turner	Stacy Rice
South Lakes	ENG 111 T	3	Larry Ward	LO	J. Turner	Stacy Rice
West Potomac	ENG 111 T	3	Paul Russell	AL	J. McClellan	Jarrod Waetje
West Potomac	ENG 111 T	3	Bernie Cabral	AL	J. McClellan	Jarrod Waetje

Spring 2013

Annandale	AUT 100	2	Joe Desio	AL	B. Bowman	Geoffrey Brow
Annandale	BUS 116	3	Stephanie Harmony	LO	J. Samuels	Miguel Corrigan
Bryant	SDV 100	1	Deirdre Magro *	AL	D. Scott	Delores Scott
Chantilly Acad.	BUS 116	3	Michelle Gaffin	MA	R. Buchanan	John Phillips
Chantilly Acad.	BUS 116	3	Michelle Gaffin	MA	R. Buchanan	John Phillips
Chantilly Acad.	BUS 116	3	Michelle Gaffin	MA	R. Buchanan	John Phillips
Chantilly Acad.	BUS 116	3	Michelle Gaffin	MA	R. Buchanan	John Phillips
Chantilly Acad.	BUS 165	3	Michelle Gaffin	MA	R. Buchanan	John Phillips
Chantilly Acad.	ITN 155	4		MA	D.Martin	Charlene Phillips
Chantilly Acad.	ITN 155	4		MA	D.Martin	Charlene Phillips
Chantilly Acad.	ITN 157	4		MA	D.Martin	Charlene Phillips
Edison	AIR 111	3	Robert Stringham	WO	T. Seaman	Patrick Dennis

Edison	AIR 121	4	Robert Stringham	WO	T. Seaman	Patrick Dennis
Edison	AUT 100	2	John Bogan	AL	B. Bowman	Geofrey Brown
Edison	HRI 106	3	Glenn Walden	AN	J. Sass	Janet Sass
Edison	HRI 107	3	Glenn Walden	AN	J. Sass	Janet Sass
Edison	HRI 158	3	Glenn Walden	AN	J. Sass	Janet Sass
Edison	ITD 134	3		AL	B. Bowman	Kevin Reed
Falls Church	BUS 116	3	Fred Coulter	LO	J. Samuels	Miguel Corrigan
Falls Church	ENG 112 T	3		AN	C. Calobrisi	Jean Dubro
Falls Church	ENG 112 T	3		AN	C. Calobrisi	Jean Dubro
Falls Church	ENG 112 T	3	Ari Jones	AN	C. Calobrisi	Jean Dubro
Falls Church	ENG 112H T	3	Ari Jones	AN	C. Calobrisi	Jean Dubro
Herndon	BUS 116	3	David Petruzzi	LO	J. Samuels	Miguel Corrigan
Herndon	BUS 116	3	Julie Pickering	LO	J. Samuels	Miguel Corrigan
Herndon	BUS 165	3	David Petruzzi	LO	J. Samuels	Miguel Corrigan
JEB Stuart	ENG 112 T	3	Cheryl Binkley	AL	J. McClellan	Jarrod Waetje
Marshall Acad.	BUS 116	3	Jennifer Hendrickson	LO	J. Samuels	Miquel Corrigan
Marshall Acad.	BUS 116	3	Jennifer Hendrickson	LO	J. Samuels	Miquel Corrigan
Marshall Acad.	BUS 116	3	Jennifer Hendrickson	LO	J. Samuels	Miquel Corrigan
Marshall Acad.	BUS 165	3	Jennifer Hendrickson	LO	J. Samuels	Miquel Corrigan
Marshall H.S.	ENG 112 T	3	Tiffany Santana	AN	C. Calobrisi	Cheri Spiegle
Marshall H.S.	ENG 112 T	3	Tiffany Santana	AN	C. Calobrisi	Cheri Spiegle
Mount Vernon	ENG 112 T	3	Melissa Brinkman	AL	J. McClellan	Jarrod Waetje
Mount Vernon	ENG 112 T	3	Melissa Brinkman	AL	J. McClellan	Jarrod Waetje
South Lakes	ENG 112 T	3	Larry Ward	LO	V. Bates	Stacy Rice
South Lakes	ENG 112 T	3	Larry Ward	LO	V. Bates	Stacy Rice
South Lakes	ENG 112 T	3	Patricia Smith	LO	V. Bates	Stacy Rice
West Potomac Acad.	HLT 141	1		MEC	A. Cornell	Jodi Gundrom
West Potomac Acad.	PTH 151	5		MEC	A. Cornell	Jodi Gundrom
West Potomac H.S.	ENG 112 T	3	Bernie Cabral	AL	J. McClellan	Jarrod Waetje
West Potomac H.S.	ENG 112 T	3	Paul Russell	AL	J. McClellan	Jarrod Waetje

Appendix K:

Budget

A Governor's STEM Academy

BUDGET

A – Direct Costs	State Funds	Perkins Funds	Other Funds (local or grant funds to be described in Budget Narrative	In-Kind
1. Personnel -1000				$26,023
2. Employment Benefits - 2000				$10,669
3. Purchased/Contractual Services --- 3000				
4. Internal Services - 4000				
5. Staff Development - 5000	$5000			
6. Summer Component Activities --5000				
7. Travel --- 5000				
8. Contractual Services ---5000				
9. Materials and Supplies --6000			$5000.00	$10,000.00
10. Equipment --8000		$45,000.00		
11. Facilities -- 8000				
B – Indirect Costs*				
Total	$5,000	$45,000.00	$5000.00	$46,692.00

*If recovering indirect costs, the rate must not exceed the federally approved indirect cost rate of the fiscal agent.

Appendix L:

Insurance

FAIRFAX COUNTY PUBLIC SCHOOLS
Risk Management, Office of the Comptroller
Gatehouse Administration Center I
8115 Gatehouse Road
Falls Church, VA 22042-1203

STATEMENT OF INSURANCE/SELF-INSURANCE

This statement shall serve to certify both the accuracy of the information as well as the financial ability of the School Board to meet the obligation imposed by the retention levels.

PROPERTY

Fairfax County Public Schools (FCPS) purchases commercial insurance from The Lexington Insurance Company to protect its property and other property in the care, custody, and control of FCPS with a self-insured retention of $100,000.

LIABILITY

Fairfax County Public Schools (FCPS) funds a liability self-insurance plan and assumes the following risks with a self insured retention of $2,000,000 and excess coverage with a $10,000,000 limit for: comprehensive general, vehicle, and school board legal liability coverages. This plan covers the School Board, its employees, approved volunteers, and certain others. Other persons/organizations cannot become additional insureds under the plan.

INDEMNIFICATION

General Counsel to the Fairfax County School Board has concluded that, because school boards in Virginia are immune from tort liability pursuant to the doctrine of sovereign immunity, the School Board cannot contractually assume such liability by way of an indemnification agreement. Without specific statutory authority to do so, the School Board has no legal authority to assume tort liability of another by way of indemnification, or to otherwise waive its sovereign immunity.

ARBITRATION

Fairfax County Public Schools cannot legally enter into any agreement/contract that specifies arbitration as a means of resolving disputes. Virginia law does provide authority to public bodies to enter into agreements that would utilize alternative dispute resolution procedures; however, such procedures would be non-binding. The Fairfax County Board of Supervisors did not adopt this option (for the School Board) into its Purchasing Resolution.

STATEMENT OF RESPONSIBILITY

Any property rented, leased, or in any other manner under the care, custody, and control of FCPS will be treated as though it is FCPS property, barring legal contract language to the contrary. Any questions concerning property coverage or liability, based upon FCPS care, custody, and control of property not owned by FCPS, will be dealt with by FCPS as though the questions arose due to an occurrence or situation involving FCPS owned property. FCPS will be liable for the acts and omissions of its own employees and agents, including the provision of liability coverage to the extent authorized by law.

Signature: Mary Jane Fick
Mary Jane Fick, Coordinator, Risk Management
571-423-3645

Date: 7/2/12

Appendix M:

Statement of Assurances

Governor's Science, Technology, Engineering and

Mathematics (STEM) Academy

STATEMENT OF ASSURANCES

The authorized signature on this page certifies to the Virginia Department of Education that the authorized official assures that:

1. The planning committee has reviewed the provisions of *Administrative Procedures Guide for the Establishment of Governor's STEM Academies* outlined in the Guidance Manual, and understands that an implementation proposal will need to address these criteria and/or others approved by the Virginia Board of Education.

2. The planning committee agrees to follow the guidelines set forth in the *Administrative Procedures* Guide for the Establishment of Governor's STEM Academy's document.

3. If the Governor's STEM Academy will be a jointly operated program, an ongoing governing board will be established or maintained to reflect concurrent Board of Education regulations relative to jointly operated schools and programs.

4. A public, government entity will serve as the grant fiscal agent.

Certification by Authorized or Institutional Official:

The applicant certifies that to the best of his/her knowledge the information in this application is correct, that the filing of this application is duly authorized by the partners participating in this process to establish a Governor's STEM Academy, and that the applicant will comply with the statements of assurances.

Jack D. Dale	Superintendent of Schools
Typed or Printed name of Authorized Official	Title