Board of Education Agenda Item

Item: _____ **Date:** June 19, 2008

Topic: First Review of a Proposal to Establish a Governor's Career and Technical Academy: The Governor's Career and Technical Academy in Arlington

Presenter: Dr. Linda M. Wallinger, Assistant Superintendent for Instruction
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Origin:

____ Topic presented for information only (no board action required)

____ Board review required by
____ State or federal law or regulation
____ Board of Education regulation
_X_ Other: Process for Initiating a Governor's Career and Technical Academy Approved by the Board of Education on November 29, 2007

_X_ Action requested at this meeting ____ Action requested at future meeting: ____(date)

Previous Review/Action:

_X_ No previous board review/action

____ Previous review/action
date _____
action _____

Background Information:
Virginia is one of six states to receive a grant from the National Governors Association (NGA) Center for Best Practices to improve science, technology, engineering, and mathematics (STEM) education. The development of Governor's Career and Technical Academies is one of the major initiatives of the grant.

Virginia's Governor's Career and Technical Academies are programs designed to expand options for the general student population to acquire science, technology, engineering and mathematics (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. Six partnerships have been awarded grants to assist with the creation of Virginia's first Governor's Career and Technical Academies.

On November 29, 2007, the Board of Education approved the criteria to establish a Governor's Career and Technical Academy. Subsequently, on March 19, 2008, the Board approved the standards for the Governor's Career and Technical Education Exemplary Standards Awards Program, in which all Career and Technical Academies must participate.

As required by the Board of Education, the State Council of Higher Education in Virginia (SCHEV) has reviewed the attached proposal and recommends that the Board approve the Governor's Career and Technical Academy in Arlington. Staff at the Virginia Department of Education (DOE) have also reviewed the proposal in the context of the Board's criteria. An executive summary of the proposal is contained in Attachment A. Attachments B and C contain the reports from the reviews by SCHEV and the DOE. Attachment D contains the complete proposal.

Superintendent's Recommendation:
The Superintendent of Public Instruction recommends that the Board of Education waive first review and approve the proposal to establish The Governor's Career and Technical Academy in Arlington.

Impact on Resources:
The Northern Virginia Community College, as the lead entity for the proposal, has already received a Department of Education planning grant through Virginia's participation in the National Governors Association's STEM Center Grant Program. Upon approval of the partnership's proposal by the Board of Education, the Department of Education will award an implementation grant to assist with further development of the program. The planning and implementation grant funds are available on a one-time basis only to the six partnerships that were selected through a grant competition associated with the National Governors Association's STEM Center Grant Program. Funding beyond the grant must be provided at the local level.

Timetable for Further Review/Action:
Governor's Career and Technical Academies funded through the National Governors Association's STEM Center Grant Program must be in operation by the beginning of the 2008-2009 academic year.

Attachment A

Governor's Career and Technical Academy in Arlington
Executive Summary
June 19, 2008

Partnership: Northern Virginia Community College and Arlington County Public Schools are co-lead partners for the Governor's Career and Technical Academy in Arlington. Partners include The American Service Center; Arlington Employment Center; Passport Nissan; Nortel Telecommunications; The American Youth Policy Forum; Viral Media Productions; and Virginia Polytechnic Institute and State University. Other supporters include The American Association of Community Colleges; Arlington Economic Development; DeVry University; Farrish of Fairfax; National Science Foundation; Passport Chrysler; and Passport Infiniti.

Fiscal Agent: Northern Virginia Community College

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Location: The Arlington Career Center
816 South Walter Reed Drive
Arlington, VA 22204

Career Pathways: Engineering and Technology
Audio and Video Technology and Film
(Health Sciences) Support Services
Information and Support Services
Facility and Mobile Equipment Maintenance

Number of Students: At least 50 students will be served during the 2008-2009 academic year, while up to 600 will be served at full implementation in the 2012-2013 academic year.

Academy Description: The Governor's Career and Technical Academy in Arlington promises a unique, jointly administered Career and Technical Education (CTE) Center, offering area CTE students an optional five-year high school diploma/two-year college degree program. The Academy will be located within the Arlington Career Center and will open its doors in the fall of 2008 as a part-day program. Students will participate in featured dual enrollment CTE courses and supporting workplace activities, along with continued study at their respective home schools. Over the next several years, an increasing number of CTE and academic subjects will be offered until the Academy also offers full-day programs as a comprehensive school.

The Academy's science, technology, engineering and mathematics (STEM)-infused

curriculum will initially feature programs within five pathways: Audio and Video Technology and Film; Engineering and Technology; Facility and Mobile Equipment Maintenance; (Health Science) Support Services; and Information Support and Services. Additional programs in other pathways will be added as the Academy develops, providing broader academic and employment opportunities for more students. Virginia Polytechnic Institute and State University will provide staff development in Integrative STEM Education, helping the Academy assimilate a cross-disciplinary pedagogy in STEM/CTE education.

Expected student outcomes include improved high school graduation rates and enrollment in postsecondary education, as well as the reduced need for remediation and an increase in college student retention, transfer, and graduation. Relevant preparation for employment will be a hallmark of the Academy. Improvement in these areas will be effected through increasing STEM and CTE academic integration, strengthening the five featured pathways, training staff and raising awareness in STEM education, and improving data collection for continuous program improvement. Students will learn subject matter as appropriate through discovery, analysis, inquiry-based research, and on-the-job experience.

Highlights:

- The Governor's Academy will be a joint secondary/postsecondary institution.
- Dual enrollment opportunities will exist for grades 11, 12, and beyond.
- Cross disciplinary pedagogy informed by Virginia Polytechnic Institute and State University's I-STEM Education program will be the major focus of staff development for teachers.
- The flexible academy model will incorporate several pathways beyond the initial five over time.
- Student job shadowing and internships will be available across a variety of disciplines.
- Optional Stretch projects will introduce students to real work-related projects.
- Involved business partners will assist in keeping curriculum relevant.
- Summer college coursework will be available.
- Students will be better prepared for work and additional higher education opportunities.

The State Council of Higher Education for Virginia

Review of Governor's Career and Technical Academy Proposal

Name of Lead Entity on Proposal: Northern Virginia Community College and Arlington Public Schools

Date of Review: May 22, 2008

The State Council of Higher Education for Virginia recommends approval of NOVA Governor's Career and Technical Academy as a Governor's Career and Technical Academy.

5·23·08

Dr. Daniel LaVista
Executive Director
State Council for Higher Education

Date

State Council of Higher Education for Virginia

Governor's Career and Technical Academies

Postsecondary Curriculum Review Checklist

Academy Name	Collaborating Partners	Total Funds Requested	Allocated Funds for Postsecondary Component
Governor's Career and Technical Academy in Arlington	Northern Virginia Community College, Arlington Public Schools (see proposal for a complete list)	$100,000	N/A

Criteria

Category 1: Postsecondary Accreditation and Approvals

YES/NO

YES	**Postsecondary institution is appropriately accredited**
NA	**Proposed postsecondary program has specialized accreditation, if applicable**
YES	**Proposed postsecondary program is SCHEV and/or VCCS approved**
NO	**Proposed postsecondary program will be seeking SCHEV and/or VCCS approval**

Category 2: Governor's Career and Technical Academy Requirements

YES/NO

YES	**Evidence of a partnership with a postsecondary institution, business, or industry, and demonstrated roles for each entity**
YES	**Offers at least one career pathway in a field identified by a statewide authority or organization as a strategic growth area for Virginia**
YES	**Offers at least one career pathway addressing regional and local work force demand in a high-wage, high-skill field identified by employers and work force officials**
YES	**At least one of the two career pathways is in a STEM-related field**

Category 3: Postsecondary/Business Component Requirements

YES/NO

YES	**Provides opportunities for students to earn industry credentials or state licensure, associate or baccalaureate degrees, and college credit for work-based experiences**
YES	**Articulates with baccalaureate programs or to higher levels of training or professional credentialing**
YES	**Demonstrates P-16 integration including curriculum development with high school, college, and university faculty (desired)**
YES	**Includes college faculty as adjunct faculty of the academy (desired)**
YES	**Provides opportunities for students to participate in work-based experiences**

Category 4: Academic Quality

YES/NO

YES	**Requires appropriate postsecondary faculty qualifications**
YES	**Requires faculty to hold industry certification, where necessary**
YES	**Planned professional development for faculty and administrators**
YES	**Planned systematic program and learning outcomes assessment**

Category 5: Administration and Funding

YES/NO

YES	**Funding is sufficient to support effective administrative and operational needs including materials, administrative personnel, and facilities**
YES	**Funding is sufficient to sustain faculty salaries, curriculum development costs, and instructional materials and delivery**
YES	**Facilities possess the necessary physical attributes to deliver the instructional program (classroom space, technology, labs, equipment)**

Comments

This is an excellent program proposal with strong objectives, guiding principles, and implementation plans.

Virginia Department of Education
Governor's Career and Technical Academy
Proposal Review Checklist

Final Review

Title of Proposal: Governor's Career and Technical Academy in Arlington

Lead Entity for Proposal: Northern Virginia Community College

Date of Review: May 3, 2008

Virginia Department of Education
Governor's Career and Technical Academy
Proposal Review Checklist

I. Partnership Capacity

Partnerships desiring to implement a Governor's Career and Technical 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 Career and Technical Academy to broaden the scope of students' educational experiences.	X		X	5/3 There are no signatures to accompany the memorandum. 6/9 The signatures have been included in the proposal.

Criteria	Documentation			Comments
	Full	Partial	None	
D. A statement of assurances that the Governor's Career and Technical Academy Planning Committee has reviewed provisions of *Administrative Procedures Guide for the Establishment of Governor's Career and Technical 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 Career and Technical 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 Career and Technical 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			5/3 Please be more specific about the five-year plan and how it impacts high school graduation.

Criteria	Documentation			Comments
	Full	Partial	None	
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			
Comments:				

III. Program Description

Each Governor's Career and Technical 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	X		5/3 In the Audio and Video Technology and Film pathway there is not enough science listed to meet the requirements for graduation. 6/9 The science requirement has been met and is correctly listed in Appendix H.
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			

Criteria	Documentation			Comments
	Full	Partial	None	
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	X		5/3 See previous comment about science requirements. 6/9 The science requirement has been satisfied and is listed in Appendix H.
5. Evidence that graduates will qualify for the Technical and/or the Advanced Technical Diplomas; and	X			
6. Incorporation of Virginia's Workplace Readiness Skills.	X			
Comments: While not required, the partnership should consider adding Earth Science to the choices students have to complete their high school academic science requirements.				

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			

Criteria	Documentation			Comments
	Full	Partial	None	
5. Reduce dropout rates;	X		X	5/3 The proposal needs to be more explicit with its dropout rate objective. 6/9 Dropout rate reduction has been quantified.
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		X	5/3 The proposal needs to be more explicit with this objective. 6/9 This objective has been satisfied.
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			

Criteria	Documentation			Comments
	Full	Partial	None	
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: Information Technology				
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	X			

Criteria	Documentation			Comments
	Full	Partial	None	
graduate levels. These pathways may be in the same or different career clusters.				
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			
Comments:				

Criteria	Documentation			Comments
	Full	Partial	None	
Pathway #2: Engineering and Technology				
a. Each career pathway must include opportunities to earn industry credentials, postsecondary certificates, diplomas or associate degrees	X			

Criteria	Documentation			Comments
	Full	Partial	None	
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.				
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 innovative capacity of the region and/or the state.	X			
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			This proposal addresses five pathways and should be commended for offering so many opportunities to students. The additional pathways are listed on p. 8 of the proposal.
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			
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.	X			
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	X			
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.	X			
Comments:				

F. Length of program and daily schedule: Governor's Career and Technical 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 Career and Technical 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. A review of the program design and instructional delivery;	X			
3. Consideration of feedback from students, staff, parents, the community, and partnership members; and	X			
4. Annual collection and reporting of data to the Department of Education related to student achievement, goal achievement, and other indicators.	X			
Comments: The committee suggests use of the Secondary Enrollment Data form as part of the analysis.				

IV. Administrative Procedures

Each Governor's Career and Technical 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 work force 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:
5/3 This item is not addressed in the proposal.
6/9 Reference to the student code of conduct appears in the proposal.

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 Career and Technical 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: There is a strong connection between the STEM program at Virginia Tech and this proposal for staff development.				

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 Proposal to Establish

The Governor's Career and Technical Academy in Arlington

Submitted by

Northern Virginia Community College

and

Arlington Public Schools

June 19, 2008

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I. Partnership Capacity

The partnership desiring to implement a Governor's Career and Technical Academy in Arlington hereby provides the Virginia Department of Education with evidence regarding required committees, agreement, and assurances.

Committees

The proposed Governor's Career and Technical Academy in Arlington is supported by ongoing planning and advisory committees that consist of members who are willing and able to serve in their respective capacities. All partners in the Governor's Career and Technical Academy in Arlington are represented on the planning committee, which will report to the advisory committee. Please refer to Appendix A for a detailed list of planning and advisory committee members and their professional titles and affiliations. These members represent secondary education; higher education; science, technology, engineering, and mathematics interests; career and technical education; and business and industrial concerns. The two committees will support the Governor's Career and Technical Academy in Arlington by ensuring that decisions and actions are aligned with the strategic vision and policies of the participating institutions and by pursuing additional resources to support the Governor's Career and Technical Academy in Arlington. Both committees have begun to oversee progress towards implementation.

Memorandum of Agreement and Assurances

The partnership seeks to open the Governor's Career and Technical Academy in Arlington in September 2008, providing a science, technology, engineering, and mathematics (STEM)-enriched career and technical education (CTE) curriculum. Appendix B provides the Memorandum of Agreement, which outlines the responsibilities and contributions of partners toward improving collaborative CTE/STEM student opportunities and outcomes. Additional support is represented by the full membership of the planning and advisory committees.

II. Work Force Needs and the Governor's Career and Technical Academy in Arlington

Introduction

The Washington metropolitan area, especially Northern Virginia, has grown immensely over the past decade and has become one of the most economically vibrant regions in the country. The population increased by 350,000 in Northern Virginia between 1990 and 2000. Projected growth in the area between 2000 and 2010 is expected to exceed 300,000. At the same time, the demand for highly-skilled and educated workers is on the rise due to emerging regional and statewide employment sectors within an expanding knowledge economy. From information technology to health care, transportation, engineering, digital media, and other fields, the numbers of qualified workers cannot keep up with demand. A rigorous and relevant model for student preparation is needed to address the demand for qualified workers and to provide a model that can be readily replicated throughout Virginia.

Arlington County Public Schools and Northern Virginia Community College help students plan and prepare for transition to higher education and employment through programs that lead to myriad career opportunities, sometimes via transfer to a university. Students in career and technical education (CTE) programs require rigorous educational preparation to participate in high-wage, high-demand career fields. These students also require the acquisition of Workplace Readiness Skills[1], as these students frequently seek employment immediately after high school graduation. The need to prepare students for Virginia's knowledge economy through science, technology, engineering, and mathematics (STEM) enriched CTE curricula will be answered by the Governor's Career and Technical Academy in Arlington.

The Governor's Career and Technical Academy in Arlington will help address these needs through five pathways described within the federal Career Clusters organizational chart:

- Engineering and Technology
- Audio and Video Technology and Film
- (Health Science) Support Services

[1] Workplace Readiness Skills include reading, mathematics, writing, speaking and listening, computer literacy, problem solving, seeing the "big picture," work ethic, positive attitude, independence and initiative, self-presentation, attendance, and working as a team member.

- Information Support and Services
- Facility and Mobile Equipment Maintenance

Commonwealth and Regional Needs

In its *Gap Analysis of Virginia's Policy Landscape*, the National Governors Association Center for Best Practices notes a "...lack of core skills and abilities among high school graduates...as evidenced by postsecondary remediation data and reports from college faculty and employers." This gap in skills is increasing as the requirements for many of today's jobs and tomorrow's emergent careers require a greater student capacity to integrate fundamental concepts of science, technology, engineering, and mathematics into their daily work. Production of workers through the Virginia education system having "…specialized postsecondary and occupational training such as technicians, technologists, and skilled labor," falls short of projected demand in those fields, given the projected 40 percent retirement of current workers from these occupations.[2] The current capacity to replace those workers is inadequate. The training of high school students to pursue high-wage jobs requiring skills in technical fields has lagged behind current and projected demand for the Commonwealth. This growing demand is presented in Appendix C.

Surveys of occupations with the largest anticipated increases in employment in Virginia in 2002-2012[3] show shortages in the following careers:

- network systems and data communications analysts;
- medical assistants;
- database administrators;
- veterinary technologists and technicians;
- physical therapist assistants;
- personal financial advisors; and
- computer software engineers and application specialists.

As the opportunities created by STEM-enriched education are realized, this list will expand. These fields currently are missing the innovative opportunity that STEM education will provide to all workers. The *Governor's Workforce Development Strategic Plan* envisions a

[2] Governor's 2007 Summit on Manufacturing, Workforce Development: *Moving Virginia Forward.* July 23-24, 2007—Danville, Virginia.
[3] Virginia Workforce Council, *Workforce Development Blueprint* (2002).

response "to long-range talent and skills forecasts as well as emergent near-term market and business needs."

A recent study of *The Health Care Workforce Shortage: An Update on the Scope and Impact of Northern Virginia*[4] illuminates the shortages across the cities and counties of Northern Virginia. The raw population growth statistics and a comparison of anticipated occupational shortages convincingly show that Northern Virginia will grow by 23.2 percent compared with a national estimate of 12.6 percent. The population is expected to grow from 2,066,363 in 2006 to over 2,545,000 by 2020. Critical health care work force vacancy rates of over 15 percent will emerge in the pool of available CT scanning technologists, occupational therapists, physical therapist assistants, physical therapists, and speech language pathologists. Shortages of 5 to 14.9 percent also are expected in the following categories:

- phlebotomists;
- registered nurses, LPNs, and medical and nurse managers;
- emergency medical technicians and medical and clinical lab technicians;
- MRI technologists and respiratory therapists;
- pharmacists and pharmacy technicians and radiologic technicians; and
- many other technicians involved in lab work and medical information management.

This group represents the technical support personnel without whom the engines of commerce and development of new industry will not thrive. The personnel required in health care, finance, transportation, and communications, in addition to the classic technology-based business innovators, will drive change through the growth of markets. The regional entrepreneurs will then be able to increase the numbers of jobs and the gross domestic product, and provide the services required by the economy.

With emphasis on five STEM-related pathways, the Governor's Career and Technical Academy in Arlington will help to meet the need for qualified technicians and for the entrepreneurs who will drive employment and regional growth while connecting Virginia to the global marketplace. On average in the five pathways, a 7 to 14 percent growth in employment is anticipated over the next five years. See Appendix D for assurances that the Academy will meet the needs as outlined by the criteria set by the Virginia Board of Education and Appendix E, Gap Analysis, for details on how the Governor's Career and Technical Academy in Arlington will

[4] This report was conducted by Price Waterhouse Coopers for The SkillSource Group and released in January 2008.

help meet the need of rising cohorts of students in Northern Virginia in information support and services and facility and mobile equipment maintenance. At the same time, the Governor's Career and Technical Academy in Arlington will provide an optional five-year high school/two-year college degree for meeting the need across Virginia.

Meeting the Need

Arlington Public Schools and Northern Virginia Community College, in partnership with Virginia Polytechnic Institute and State University (Virginia Tech), other higher education, industries and businesses, propose to open a Governor's Career and Technical Academy in Arlington in September 2008. The Governor's Career and Technical Academy in Arlington will provide a collaborative learning community for integrated STEM education in five initial career and technical education career clusters, listed in Table 1.

Table 1: Federal Career Clusters and Pathways to be offered at the Governor's Career and Technical Academy in Arlington

Career Cluster	Pathway
Science, Technology, Engineering and Mathematics	Engineering and Technology
Arts, Audio/Video Technology & Communications	Audio and Video Technology and Film
Health Science	Support Services
Information Technology	Information Support and Services
Transportation, Distribution and Logistics	Facility and Mobile Equipment Maintenance

According to the Virginia Employment Commission, computer-related careers (e.g., programming, network analysis, database administration) are among the 20 fastest-growing occupations in Virginia. Projected job openings are expected to increase between 48 and 69 percent from 2002 to 2012. According to the report *Human Capital: Greater Washington Knowledge Worker*[5], regional growth of 28 percent is projected for the greater Washington, D.C. region between 2005 and 2014, with a projected increase in positions from 219,950 to 281,540. The Information Support and Services pathway featured at the Governor's Career and Technical

[5] A publication of the Greater Washington Initiative issued in 2007. Please see www.greaterwashington.org

Academy in Arlington will prepare interested students for careers and additional education through a variety of college certificate and associate degree programs.

The Northern Virginia Workforce Investment Board projects 14 percent growth for the Northern Virginia region in automotive service technology (within the Facility and Mobile Equipment Maintenance career pathway) by 2016. Virginia's outlook projects 16.5 percent growth for automotive technicians statewide, compared to 14.3 percent national growth. Through an associate degree program, automotive technology students in the Governor's Career and Technical Academy in Arlington will be offered a curriculum with a greater emphasis on mathematics and science than they might otherwise receive.

The Governor's Career and Technical Academy in Arlington will meet the needs that have emerged and are anticipated to emerge in health care, engineering, automotive, information technology, and digital media.

The framework of the Governor's Career and Technical Academy in Arlington, an optional five-year high school/two-year college degree program, will provide students an opportunity to earn a high school diploma and associate degree in five years. In short, this framework will allow many graduates to complete a portion of their baccalaureate degree at no out-of-pocket costs to them or their families. At the same time, the STEM-enriched curricula combined with CTE programs of the Governor's Career and Technical Academy in Arlington will enable more students to earn the proposed Technical and Advanced Technical Diplomas. Students can be confident in the education they receive at the Governor's Career and Technical Academy in Arlington, knowing that featured pathways address current and anticipated regional and statewide work force demands. The Governor's Career and Technical Academy in Arlington will strengthen student career readiness by offering the Virginia Workplace Readiness[6] curriculum. The purpose is to prepare students for critical need, high-wage careers through internships, job shadowing, cooperative education, and other business partner activities.

[6] Governor Tim Kaine endorsed the Virginia's Workplace Readiness Skills Curriculum when he sent Dr. Thomas Morris, the Governor's Secretary of Education, to the Technical and Career Education Awards Celebration in May 2006. Dr. Morris delivered remarks from the Governor to celebrate the curriculum and honor the 13 teacher writers from Virginia Beach City Public Schools (VBCPS). The awards ceremony featured a video clip of the Governor's endorsement that provided a rationale for teaching Workplace Readiness Skills in CTE in core classrooms and work force development centers.

To meet the ambitious goals of establishing a Governor's Career and Technical Academy in Arlington in September of 2008, an intensification of recordkeeping and tracking of student academic performance will be instituted. Additional personnel will be assigned these duties and new systems will be put in place to provide the benchmarks and baseline data required for a rigorous measurement of performance. Please see Performance Measures and Objectives on page 14 for a more comprehensive discussion of data driven management.

Academy Objective Summary

Develop an optional 5-Year High School/2-Year College Degree Program

1. Increase STEM/CTE curricular integration.
2. Strengthen the five featured pathways.
3. Train staff and raise awareness in Integrative-STEM pedagogy.
4. Increase high school graduation and postsecondary enrollment and retention.
5. Improve data coordination and collection for continuous program improvement.

III. Program Description

Operational Plan

The Governor's Career and Technical Academy in Arlington will be organized around the four overarching principles which were identified by Dr. Bill Daggett, president of the International Center for Leadership in Education and a proven leader in school reform focused on rigor and relevance. The principles are:

- Rigorous academic and technical achievement;
- Relevance—providing workplace readiness and marketplace connections;
- High-level projects incorporating academic and CTE competencies, otherwise known as Stretch Projects; and
- Student engagement with school and community.

These principles will guide program development and implementation of the Governor's Career and Technical Academy in Arlington in five pathways:

1. Engineering and Technology
2. Audio and Video Technology and Film
3. (Health Science) Support Services
4. Information Support and Services
5. Facility and Mobile Equipment Maintenance

The number of career pathways offered through the Governor's Career and Technical Academy in Arlington will expand as student interests and numbers increase over the three- to five-year implementation of this jointly administered high school program.

Northern Virginia Community College provides dual enrollment courses offered at off-site locations such as the Arlington Career Center. Under the partnership to establish a Governor's Career and Technical Academy in Arlington, Northern Virginia Community College works collaboratively to lift existing high school curricula to the college level. For more than a decade, the Arlington Career Center has offered a number of courses articulated with Northern Virginia Community College. Dual enrollment courses have already been established in transportation and digital media. Through the Governor's Career and Technical Academy in Arlington, the Arlington Career Center will strengthen its partnership with Northern Virginia Community College to offer on-site, dual enrollment courses in each of the five pathways. Over

time, Northern Virginia Community College courses in academic subjects will be offered on-site at the Governor's Career and Technical Academy in Arlington.

The overarching goal of the Governor's Career and Technical Academy in Arlington is to make it possible for students to satisfy the Commonwealth Scholars Course of Study (see Appendix F) in four years, receive a high school diploma at the end of grade 12, and earn an associate degree in five years. Graduates will be encouraged to transfer to four-year institutions such as Virginia Tech and George Mason University. Those holding an associate of science or an associate of arts degree will be prepared to transfer into and successfully complete their baccalaureate degree. It should be noted that students will not be required to participate in the five-year program. No students in the Academy will be denied high school diplomas in four years if they complete the diploma requirements.

A distinguishing feature of the Governor's Career and Technical Academy in Arlington will be encouragement of student engagement in high-level work known as Stretch Projects, which integrate academic and technical competencies. Stretch projects are made possible through engaging industry and community partners. Two examples of Stretch projects completed through the Arlington Career Center are the high-definition promotional video produced and edited for the Arlington County Police Department, and the *CanDo* competency tracking computer software produced by computer science students in conjunction with the Shuttleworth Foundation and Thomas Jefferson High School for Science and Technology. Projects such as these will be developed and integrated into the curriculum for each of the five pathways. The grant will allow Arlington Public Schools to work closely with academic partners, especially Virginia Tech, to train staff of the Governor's Career and Technical Academy in Arlington in applying this rigorous Integrative-STEM[7] approach to all five initial pathways and to future pathways as they are launched.

The Governor's Career and Technical Academy in Arlington's team of data collection professionals will track student acquisition of Workplace Readiness Skills, subject matter competencies, and academic achievement. Arlington Public Schools will determine whether each student meets criteria to qualify for the technical seal on his or her diploma and will confer the seals. Data from the Governor's Career and Technical Academy in Arlington will be integrated

[7] Integrative STEM (I-STEM) is an educational approach originated at Virginia Tech to develop 21st-century K-16 educators, leaders, scholars, and researchers who are prepared to investigate, teach, and disseminate new integrative approaches to STEM teaching and learning. See Appendix I for complete explanation.

into school system records and will be reported for both formative and summative evaluation purposes. Staff from both Northern Virginia Community College and Arlington Public Schools will analyze data related to program offerings, ensuring accuracy, data security, and access to aggregate data by all stakeholders.

Counseling is a key component for the Governor's Career and Technical Academy in Arlington because it allows students, parents, and other stakeholders to learn about this opportunity beginning in elementary and middle school. Arlington Public Schools has embraced a system of six-year plans for all students, beginning in sixth grade using a template of career and academic interest pathways known as Exploring and Mapping Academics and Careers. Northern Virginia Community College will ensure that students in the Governor's Career and Technical Academy in Arlington have a qualified career coach available on-site who can help them plot individual academic careers using the five established pathways and additional pathways that emerge as the implementation program reaches maturity.

Success of the Governor's Career and Technical Academy will depend on promoting the career pathways to counselors from feeder high schools and helping them to identify rising middle school students. The enrollment process will engage counselors, school staff, parents, students, and the community as critical components in communicating attainable program goals. Tracking and focusing of curricula to effectively feed students to the Governor's Career and Technical Academy in Arlington will require oversight by administrators and policymakers for all institutions involved, due to the dynamic nature of the educational program. Course content, cluster components, and pathway exits and entrances will be affected by ongoing changes in education theory and practice, the labor market, and larger economic movements. The Northern Virginia Tech Prep Consortium will support a professional career coach as part of its annual Tech Prep Proposal to the Virginia Community College System, effective for the 2008-2009 academic year. For three years, Tech Prep funds will provide $15,000 per year for the career coach position, which thereafter will be funded from renewable sources of support generated by dual enrollment. The career coach will ensure that individual students seeking dual enrollment and the optional five-year associate degrees are on track for completion of their academic paths. In addition, the career coach will help to reinforce the rigorous dual enrollment standards, allowing credit earned to be transferred to baccalaureate programs as appropriate.

Among the more substantial benefits available to students under the Governor's Career and Technical Academy in Arlington will be the possibility of earning an associate degree within five years. This will provide powerful financial incentives for many students who will have earned a number of college credits while earning their high school diploma.

Performance Measures and Objectives

The Governor's Career and Technical Academy in Arlington has developed an Integrative STEM program with the primary objective of preparing students to compete in the 21st-century global work force. The program utilizes nationally-recognized best practices drawn from the Rigor/Relevance Framework, a tool developed by the International Center for Leadership in Education. The performance measurements based on the practices of the framework will be established as students and classes enter the Governor's Career and Technical Academy in Arlington. For example, Standards of Learning (SOL) scores from the previous year will be affixed to student records and performance against that baseline will be measured for that individual and their cohort. Student grades, competency records, and dual enrollment classes will also be placed within the Rigor/Relevance Framework. Finally, student performance in postsecondary careers will be tracked. Workplace Readiness Skills, Stretch Projects, and engagement with the school and community[8] will be tracked and measured accordingly. The Rigor/Relevance Framework follows:

1) Rigorous Academic and Technical Achievement
    - SOL scores
    - Grades
    - Competency attainment
    - Advanced Placement Classes
    - Dual enrollment
    - Postsecondary enrollment
2) Relevance in Workplace Readiness and Marketplace Connections
    - Workplace Readiness curriculum completion
    - Internships
    - Job shadowing

[8] See item 4 on page 15 for an explanation.

- Employment in relevant high-technology positions
- Industry certifications

3) Stretch Projects for Students
    - SkillsUSA™ and DECA™ competitions and co-curricular activities
    - Research projects based on the Gemstone Program[9]
    - Projects for clients (e.g., promotional videos for Arlington Police Department, Arlington Fire Department, and the Arlington Career Center)
4) Student Engagement with School and Community
    - Community Focus Projects
    - Academy Ambassador Program (Students represent the institution during community and school activities)
    - High school four-year cohort, two-year transfer and four-year college graduation rates (also measures dropout rate)
    - Proportion of students requiring remediation in college

Baseline information for the above measurements will be derived from Arlington Public Schools and Northern Virginia Community College outcomes for the 2007-2008 academic year. Immediate benchmarks such as dual enrollment courses and number of industry certifications attained will improve by 10 percent by the completion of the 2008-2009 academic year. Long-term efforts, such as improvement of SOL scores and dropout rate, decrease in number of students requiring remediation in college, and increase in postsecondary enrollment, will show a 10 percent improvement after full program implementation in 2011-2012. The Governor's Career and Technical Academy in Arlington will foster collaborative efforts, identify obstacles to overcome, and seek to improve student results through continuous feedback.

One advantage of a new institution is the opportunity to collect comprehensive information for performance evaluation. Longitudinal studies will collect both qualitative and quantitative data. A data committee will be responsible for collection, disaggregation, and

[9] The Gemstone Program at the University of Maryland is a unique, multidisciplinary, four-year research program for selected undergraduate honors students of all majors. Under guidance of faculty mentors and Gemstone staff, teams of students design, direct and conduct significant research, often but not exclusively, exploring the interdependence of science and technology with society. Gemstone students are members of a living-learning community comprised of fellow students, faculty and staff who work together to enrich the undergraduate experience. This community challenges and supports the students in the development of their research, teamwork, communication and leadership skills. In the fourth year, each team of students presents its research in the form of a thesis to experts, and the students complete the program with a citation and a tangible sense of accomplishment.

dissemination of reports on progress to all stakeholders. This essential data for administrators and teachers will be shared using the *Data Wise* (YEAR) framework, a resource guide under development for the Governor's Career and Technical Academy in Arlington that will be available for beta testing this summer and in place by September 2008. *Data Wise* was created by faculty and doctoral students at the Harvard Graduate School of Education to serve as a catalyst for school improvement. Data will be evaluated on a periodic basis to reinforce the internal data collection and analysis described above.

The Program

Upon approval, the Arlington Career Center will expand upon its existing programs in September 2008 by hosting the Governor's Career and Technical Academy in Arlington. To start the first year, at least 10 students from grades 11 and 12 are expected to enroll in each featured pathway. The first students may continue to take core academic classes at their respective home schools while they pursue their STEM/CTE classes as a half-day program at the Governor's Career and Technical Academy in Arlington. These students may also meet their remaining high school academic and CTE requirements through dual enrollment courses at the Governor's Career and Technical Academy in Arlington. Several dual enrollment academic courses will be offered this first year to address the common academic requirements of featured career pathways. The first graduates of the Governor's Career and Technical Academy in Arlington will leave high school with more college credit than previously available to CTE students in Arlington.

Over the next three academic years, the Governor's Career and Technical Academy in Arlington will be transformed from a modest collection of dual enrollment courses to a school with articulated pathways to college and work for grades 9 through 13. Additional dual enrollment Northern Virginia Community College and Arlington Public Schools academic courses will be offered at the Governor's Career and Technical Academy in Arlington, making it possible for students to earn a high school diploma and associate degree in five years. At full implementation, the Arlington Career Center will become the Governor's Career and Technical Academy in Arlington in name and purpose. As a school of enrollment, the Governor's Career and Technical Academy in Arlington will continue to feature STEM/CTE programs, while integrating current Arlington Career Center programs into a synergistic whole. CTE students will

have the opportunity to move seamlessly between STEM and non-STEM disciplines based on their own interests, capabilities, and challenges.

This model will accommodate students with a broad range of interests and abilities, giving them an opportunity to complete a community college certificate or degree by the end of grade 13. For example, automotive technology students will be prepared for work and onward study with an associate of applied science degree. Information technology students will have two options: an associate of applied science degree or an associate of science degree, which will enable them to transfer to a university. Engineering students may elect to take a rigorous academic course of study, earning a transferable associate of science degree. Health care students will have the opportunity to complete career studies certificates that can lead to employment and meet prerequisite requirements for additional study in allied health and nursing career fields. Plans for the Audio and Video Technology and Film career pathway include an associate degree in social science or liberal arts, with a specialty in communication in the digital age. This degree would prepare students for transfer to four-year universities. Students in pathways lacking a related degree option often share an interest in entrepreneurism and will be offered the option of a supplementary degree in business. The Governor's Career and Technical Academy in Arlington will be known for STEM and CTE programs of excellence, building upon Arlington Public Schools and Northern Virginia Community College's reputation for salient academic programs. (See Appendix G for a complete list of certifications for which Arlington Public Schools and Northern Virginia Community College prepare students.)

Exemplary Standards

The Arlington Public Schools Office of Career, Technical, and Adult Education has instituted an Exemplary Standards Program, whereby all CTE instructors document their programs against 40 nationally recognized standards. This program is implemented, in part, to comply with Arlington Public Schools' policy for accountability and evaluation, requiring systematic evaluation to encourage continuous school improvement. The program is conducted on an ongoing six-year cycle.

The Office of Career, Technical, and Adult Education implemented the Exemplary Standards evaluation process to provide some of the data necessary to consistently evaluate the many career and technical education programs in the Arlington Public Schools. A national

advisory committee of experts in career and technical education worked with the National Dissemination Center for Career and Technical Education at Ohio State University to develop a series of criteria to describe the components of exemplary career and technical education programs. The criteria are intended to describe best practices of career and technical education programs at the secondary level and point toward data that technical and career educators should collect and analyze to identify programs and areas for improvement. The Arlington Public Schools Exemplary Standards Program Evaluation was modeled on national criteria and benchmarks. To date, almost 20 CTE programs have completed their documentation and evaluation (see Table 2).

A review of Arlington Public Schools Exemplary Standards Program's evaluation benchmarks and the Governor's Exemplary Standards Award Program's proposed standards reveals close ties between the two programs. A majority of Arlington Public Schools pathways are in the evaluation process for 2007-2008 or have already been evaluated. The Governor's Career and Technical Academy in Arlington will have eight programs that could submit data for the Governor's Exemplary Standards Awards Program as early as the 2008-2009 school year. The Secondary Enrollment Demographics Form[10] will also be submitted as part of collection and analysis. The Governor's Career and Technical Academy in Arlington will replace the Arlington Public Schools Exemplary Standards Program with the Governor's Exemplary Standards Awards Program, and will train all personnel on compliance.

[10] The Secondary Enrollment Demographics Form collects class enrollment and demographic data on Career and Technical Education classes in grades 6–12. The data is used to determine career and technical Standards of Quality (SOQ) funds for local school divisions and to calculate Non-Traditional Career Preparation Enrollment.

Table 2: Arlington Public Schools Exemplary Standards Program Evaluation Results

Technology and Trade & Industrial		
Television Production	2005/May	Exemplary
Animal Science	2006/May	Exemplary
Forensics	2006/May	Exemplary
Auto Body	2006/May	Achieving
Computer Systems Technician	2006/May	Achieving
Aviation	2007/June	Exemplary
Cosmetology	2007/May	Exemplary
Carpentry	2007/May	Improving
Family and Consumer Sciences		
Family and Consumer Sciences	2006/May	Exemplary
Early Childhood	2007/May	Exemplary
Business and Information Technology		
Classroom on the Mall	2007/May	Exemplary
Banking and Finance	2007/May	Exemplary
Business, High School	2007/May	Achieving
Business, High School	2006/May	Exemplary
Business, Middle School	2006/May	Exemplary
Business, Middle School	2006/May	Exemplary
Business, Middle School	2006/May	Exemplary
Business, Middle School	2007/May	Exemplary
Business, High School	2006/May	Improving

Course Descriptions

Detailed sample plans of study for the five career pathways of the Governor's Career and Technical Academy in Arlington (Engineering and Technology, Audio and Video Technology and Film, Support Services, Information Support and Services, and Facility and Mobile Equipment Maintenance) are presented in Appendix H. The programs of study are based on the national pathway model provided by the Career Clusters Institute. Teacher leaders from each of the five pathways will use the criteria below for designing their programs.

A successful graduate of the Governor's Career and Technical Academy in Arlington will have completed:

- Requirements for a high school diploma (Technical or Advanced Technical when approved);
- At least nine college transferable credits;
- A Board of Education-approved Industry certification (one or more);
- Requirements for a Workplace Readiness Certificate; and
- An extended workplace experience such as cooperative education, internship, or mentorship.

Additional optional components of The Governor's Career and Technical Academy in Arlington diploma will include:

- Completion of service learning or civic engagement experience;
- Completion of Stretch Projects;
- Participation in co-curricular activities including student organizations (SkillsUSA™, DECA™) and their respective competitions; and
- An Associate degree.

Table 3: Partners in Work-Based Experience

Partner	Students in Work Experience		
	2005-2006	2006-2007	2007-2008
American Service Center	2	3	1
Nortel	20	20	5
Arlington Independent Media	2	4	5
Arlington Sports and Health			2
Arlington Educational TV	1		2
Audi of Alexandria	1	1	3

Table 3 lists key partners providing work-based experiences for students from the Arlington Career Center who have committed to continuing their work with students under the structure of the Governor's Career and Technical Academy in Arlington. The small sample provided is drawn from a list of more than 100 sites available.

Schedules

Northern Virginia Community College dual enrollment courses will follow the Arlington Public School semester, which differs from the standard Northern Virginia Community College semester schedule. Starting in 2008-2009, the Governor's Career and Technical Academy in

Arlington will be a part-day program and will work in conjunction with academic courses at four feeder high schools: Washington-Lee High School, Wakefield High School, Yorktown High School, and H.B. Woodlawn Secondary School. This will allow students a variety of academic coursework from which to choose. Currently, a number of students attend the Career Center full day. Within three years, beginning in the 2011-2012 academic year, a more comprehensive full-day program will be available to more students at the Governor's Career and Technical Academy in Arlington. CTE programs will continue to be made available to other Arlington Public Schools students on a part-day basis as space is available.

Fiscal Assurance

The operating funds and facilities available to support the Governor's Career and Technical Academy in Arlington are adequate to meet the needs of the program. The budget and budget narrative for the implementation year (included in Part V of this proposal, pages 29-34) clearly demonstrate that the salaries and benefits for administrators, teachers, faculty and career coach assigned from Northern Virginia Community College, ancillary recordkeeping personnel, and grants management personnel have been identified and assigned as a condition of their employment to support the Governor's Career and Technical Academy in Arlington. All appropriate rules and regulations of Northern Virginia Community College will be followed with respect to funds administration.

The professional development funds required to enhance delivery of STEM education will begin with the funds provided under the implementation grant and continue with Perkins funding. The facilities, offices, classrooms, labs, and other infrastructure in which the work of the Governor's Career and Technical Academy in Arlington will be conducted exist within the Arlington Career Center. The coordination of classroom and other teaching space required by the Governor's Career and Technical Academy in Arlington will be managed by the principal of the Arlington Career Center or his/her designee in close collaboration with the career coach assigned by Northern Virginia Community College to support the implementation of this joint academy.

Northern Virginia Community College's long-term commitment to the Governor's Career and Technical Academy in Arlington is based on the financial return generated by the dual enrollment of students. Each faculty member assigned to the Governor's Career and

Technical Academy in Arlington requires an approximate average annual commitment of $85,000 for salary and benefits. Temporary staff appointments will be funded by Northern Virginia Community College and Arlington Public Schools. The partnership will develop a plan for establishing joint appointments in the long term.

The funding and in-kind support for partnership programs, job readiness preparation internships, co-ops, and apprenticeships will be met in part by business and industry partners. Requirements for the labs, studios, and other workshop facilities for the Governor's Career and Technical Academy in Arlington will be met with support from business partners, existing funds, and facilities available to the Arlington Career Center, by facilities and access agreements under dual enrollment, or by special arrangements between Northern Virginia Community College and Arlington Public Schools on behalf of the Governor's Career and Technical Academy in Arlington. At full implementation, the Governor's Career and Technical Academy in Arlington will fully integrate the Arlington Career Center and its fiscal, human, and physical resources.

Materials and Equipment

The Arlington Career Center will allocate equipment and facilities for the IT Pathway of the Governor's Career and Technical Academy in Arlington. All other labs and equipment are in existence. Arlington Public Schools supports instructional programs through operating funds, CTE funds, and grant funds such as the Carl D. Perkins Vocational and Technical Education Act funds. Nearby Northern Virginia Community College campuses will provide facilities and training aids as necessary for the five featured pathways of the Governor's Career and Technical Academy in Arlington.

Commitment to Continuous Improvement

Arlington Public Schools, School Board Policy 45-3, Accountability and Evaluation, provides a framework for the evaluation of all programs:

The Arlington Public Schools employs a comprehensive evaluation and accountability system to:

- spur continuous improvement of outcomes for students, staff, schools, departments, programs, and the school system as a whole;
- ensure the effective use of resources to achieve the system's goals;
- facilitate effective decision-making; and

- hold staff, students, schools, departments, programs, and the school system accountable for their contributions to the achievement of these aims.

The School Board will clearly state the system's goals and expectations. For each component of the school system being evaluated, the Superintendent shall provide:

- quantitative and qualitative evaluation criteria that assess progress toward the goals and expectations;
- analysis of results, both short-term and over time;
- established evaluation cycles and timelines; and
- identification of responsibility and determination of any consequences or changes.

  Each evaluation will address issues appropriate to the program or service assessed, such as:

  - fidelity of implementation;
  - differential outcomes by population;
  - satisfaction of users and clients;
  - unanticipated outcomes; and
  - cost-effective allocation of resources.

The Superintendent shall report to the Board at least annually on how well the objectives of the evaluation and accountability policy are achieved by students, staff, schools, programs, departments, and the school system as a whole.

The Arlington Career Center will continue to be evaluated through Arlington's Career, Technical, and Adult Education Office, until it is integrated fully into the Governor's Career and Technical Academy in Arlington. The Governor's Career and Technical Academy in Arlington will be evaluated by its planning and advisory committees to include policies, procedures, and outcomes, a review of program design, and instructional delivery consistent with that of Arlington Public Schools, as articulated above. The review also will solicit feedback from stakeholders including students, staff, and parents, and community, postsecondary, and industry partners. An independent evaluator will be contracted to review and buttress internal reports with professional examination of programmatic outcomes and fiscal management and will produce a comprehensive implementation status report on an annual basis. At full implementation, the external evaluator will provide expert assistance for the development of a strategic plan to ensure continuity in programming and in the trajectory of academic performance. This independent audit will incorporate data provided by the Academy.

IV. Administrative Procedures

Partnerships

Under the School and Community Relations Program, Arlington Public Schools maintains a Partners in Education program to provide guidelines, forms, and staffing for coordinating school partners. All partners of the Governor's Career and Technical Academy in Arlington must be registered through this program. Additional in-depth partnership agreements required by the Governor's Career and Technical Academy in Arlington will be developed by the partnership in close coordination with the Partners in Education program.

Students

Recruitment and Selection: Student recruitment, placement testing, selection, and admissions will occur in the broader context of the previously described Arlington Public Schools' Exploring and Mapping Academics and Careers, and through the existing Arlington Public Schools policy and procedures for admissions and placement. Northern Virginia Community College will administer placement tests and will ensure students meet requirements for each course in which they dual enroll. Equal opportunity to take a class should be available to any student who meets class prerequisites, regardless of whether or not the student is enrolled full-time in the Governor's Career and Technical Academy in Arlington. Should enrollment exceed space availability, standard Arlington Public Schools policies and procedures will be used to manage the high interest.

The success of this project will be measured by increased enrollment in the Governor's Career and Technical Academy in Arlington and by educational outcomes aligned with this proposal. The program's central objective is to raise standards and opportunities in career and technical education, and not to exclude students from participation in these life-changing opportunities for academic growth and professional advancement.

Transportation: Arlington Public Schools will provide transportation to students of the Governor's Career and Technical Academy in Arlington at no cost to families, consistent with established policies and procedures.

Student Code of Conduct: Students enrolled in courses in the Arlington Public Schools will be held accountable to the Arlington Public Schools Code of Conduct. Students dual enrolled will also be held to the code of conduct for Northern Virginia Community College.

Faculty and Administrative Staff

Recruitment and Selection: Once a position is identified for the Governor's Career and Technical Academy in Arlington, the Arlington Public Schools personnel office will be contacted, a job description will be developed and advertised, and interview and selection process will take place in accordance with Arlington Public Schools personnel policies and procedures. This process ensures that all staff of the Governor's Career and Technical Academy in Arlington will have the required licenses, certifications, industry and teaching experience. Employment of full- or part-time faculty for dual-enrolled courses will be overseen by Northern Virginia Community College hiring processes and requirements as dictated by Northern Virginia Community College policy.

Professional Development: Development and training of teachers, counselors, and administrators for the Governor's Career and Technical Academy in Arlington will take place through Virginia Tech, under the banner of Integrative STEM (I-STEM) Education. The training will start in June 2008 with a three-day institute led by one of the developers of Virginia Tech's I-STEM program, Dr. Mark Sanders. This summer institute will focus on preparation of teacher leadership in STEM integration in each of the five pathways. See Appendix I for a full explanation of the I-STEM pedagogy provided by Virginia Tech to the other members of the partnership.

Graduate Certificate and Degree Opportunities: Starting in fall of 2008, Virginia Tech's program in I-STEM will be available for all staff of the Governor's Career and Technical Academy in Arlington, as well as other interested faculty and staff from Arlington Public Schools and Northern Virginia Community College. A sample of courses is provided in Table 5, below; see Appendix I for a complete schedule of I-STEM professional development activities. Through Virginia Tech, participants in the Governor's Career and Technical Academy in Arlington may pursue an Integrative STEM Education Graduate Certificate (12 credit hours, pending university approval), a master's degree (30 credit hours), an education specialist degree

(30 credit hours), or one of two options for doctoral degrees, also described in the Schedule of STEM Professional Development Activities, Appendix I.

These graduate degree options were designed to develop 21st-century, K-16 I-STEM educators, leaders, scholars, and researchers prepared to investigate, teach, and disseminate new integrative approaches to STEM teaching and learning. The Virginia Tech program focuses on the investigation and application of new integrative approaches to STEM education. I-STEM education exemplifies the recommendations of the seminal STEM education reform publications of the past two decades, including *Science for All Americans*, *Benchmarks for Science Literacy*, *Principles and Standards for School Mathematics*, *National Science Education Standards*, *Standards for Technological Literacy*, and *Educating the Engineer of 2020*.

Table 5: I-STEM Courses Available to Faculty and Staff of the Governor's Career and Technical Academy in Arlington

Course Name	Description
STEM Education Foundations	An introduction to the educational, political, economic, and socio-cultural foundations of the STEM and STEM education disciplines.
STEM Education Pedagogy	Through careful analysis of readings and case studies, students in this course will explore the signature pedagogies unique to the fields of science, technology, engineering and mathematics (STEM) education.
STEM Education Trends and Issues	An introduction to contemporary K-16 STEM education trends and issues, including both integrative and within-discipline trends/issues.
STEM Education Research	Designed to survey the educational research practices of STEM disciplines, this course investigates the approaches used in studying the teaching/learning processes within the context of each discipline.
STEM Education Seminar	This course is designed as a general exploration into the issues surrounding the development of a STEM literate populace through education.
Field Studies in STEM Education	Applied study in one or more educational institutions.

Professional Development Seminars: As administrators deem necessary, additional professional seminars or professional development will be offered in complementary areas of:

- leadership and change;
- project-based inquiry;
- problem-based and design-driven inquiry;
- student and career counseling in STEM/CTE disciplines;
- promotion of diversity in STEM and CTE through integrated coursework;

- literacies in STEM and CTE fields; and
- data-driven decision-making.

Abbreviated versions of these topics will also be available in half-day seminars. Teacher professional development courses will be targeted for online availability and complementary courses and seminars can be conducted on-site in Arlington County or at the nearby Virginia Tech Northern Virginia Center in Falls Church.

Staff Evaluation: Staff will be evaluated according to the personnel policies of the Arlington Public Schools. Northern Virginia Community College faculty teaching dual-enrolled courses will be evaluated according to the policies of Northern Virginia Community College. Arlington Public Schools faculty teaching dual-enrolled courses will be evaluated according to both the Personnel policies of Arlington Public Schools and Virginia Community College System policies.

Community Involvement

The Arlington Career Center administrative staff will work with Arlington Public Schools staff on the parent, student, and community involvement aspects of the Governor's Career and Technical Academy in Arlington until full implementation. Once fully implemented, the staff of the Governor's Career and Technical Academy in Arlington will continue this work. Arlington Public Schools staff involved in this process will include the assistant superintendent of instruction; the assistant superintendent of student services; the director of career, technical and adult education (CTAE); and CTAE instructional supervisors. Outreach staff from the Arlington Career Center and, later, the Governor's Career and Technical Academy in Arlington, will include its principal and counseling department staff members.

Arlington Public Schools has laid the groundwork for the Governor's Career and Technical Academy in Arlington through several staff and community planning committees, including:

- Educational Design Team: group of 30 educators developed guiding principles around STEM education;
- STEM Task Group: citizen group that reviewed the work of the Educational Design Team and provided findings to the School Board affirming that work;

- Career/Interest Pathways Program Development Committee: examined the Arlington Public Schools program of studies from a pathways perspective; affirmed the importance of six-year academic plans for all students, covering middle and high school to ensure inclusion of career assessments, academic, and career goals; and
- STEM Data Collection Committee: working with Arlington Public Schools data warehouse and data collection procedures to make sure that data needs of the Governor's Career and Technical Academy in Arlington conform to Arlington Public Schools procedures and can be accommodated with the larger data collection system.

In addition, the Northern Virginia Tech Prep Steering Committee, representing the Northern Virginia Tech Prep Consortium, includes the CTE directors for all regional school districts, as well as Northern Virginia Community College administrators. Tech Prep supports and provides guidance to career coaches and assists with the development of regional pathways. Northern Virginia Community College has assembled a career pathways team with close ties to the community and to industry. This team will be made available for consultation and pathway design to the Governor's Career and Technical Academy in Arlington. The career pathways team assisted in designing the pathway maps attached in Appendix H.

V. Fiscal Information

Insurance

Northern Virginia Community College is authorized for insurance under the Commonwealth of Virginia Risk Management Plan which is administered by the Virginia Division of Risk Management. General liability insurance coverage for college academic activities includes tort liability, medical malpractice, and automobile liability when applicable. The limits on this coverage are established by the Virginia Department of Risk Management and include $2,000,000 for tort claims against persons, $100,000 for tort claims against the Commonwealth, $1,925,000 for medical incident per occurrence.

Arlington Public Schools are insured by the Virginia Association of Counties Risk Management Program for property, liability, and auto insurance. The liability insurance is comprehensive coverage of $5,000,000 per occurrence with no annual aggregate limit. Arlington Public Schools does not provide individual health insurance to students but offers a voluntary student accident program.

Please see Appendix J for certificates of coverage for Northern Virginia Community College and Arlington Public Schools.

Budget for Implementation Grant

A. Direct Costs		**TOTAL**			
Grant Funds (May not exceed $100,000 total)	**Grant Funds**	**Perkins Funds**	**Other Funds**	**In-Kind**	
1. Personnel---1000	13,650			240,000	Two Northern Virginia Community College Faculty Members (Mathematics and Science) One half of a Career Coach, and .65 of an assistant to the partnership.
2. Employee Benefits---2000	4,350			76,800	Calculated on 32 percent of salary
3. Purchased/Contractual Services---3 000					
4. Internal Services---4000					
5. Staff Development---5000	42,000	100,000			
6. Summer Component Activities---5000					
7. Travel---5000	18,000		5,000		
8. Contractual Services---5000	18,500				
9. Materials and Supplies---6000 (stock I-STEM resource/research library with digital as well as hard copies.)	3,500				
10. Equipment---8000					
11. Facilities---8000					
B. **Indirect Costs**				196,265	
Total	100,000	100,000	5,000	513,065	

Budget Narrative

The implementation grant of $100,000 will provide critical seed funding for professional development, curriculum development, and student enrollment. These are essential elements in building the Governor's Career and Technical Academy in Arlington into a fully-implemented STEM-focused program that can provide associate degrees in select fields.

Salary $13,650 plus Benefits $4,350 $18,000

The partnership for the Governor's Career and Technical Academy in Arlington will require administrative support that will allow coherent reporting, document tracking, and coordination of planning and advisory committee meetings. The salary and benefits for this individual will be supported by additional funds from Northern Virginia Community College.

Staff Development $42,000

The early training of staff in collaboration with the Education Department of Virginia Tech will begin in summer 2008 with an introductory immersion of the first cohort of faculty in Integrative STEM (I-STEM) education. This short course will help orient faculty to the five career pathways and also will begin the integration of Northern Virginia Community College faculty who will be assigned to the Governor's Career and Technical Academy in Arlington beginning in September 2008. Twenty-five faculty and administrators will receive the introductory immersion training at a cost of approximately $750 per participant plus books and other training materials. Development and training of teachers, counselors, and administrators for the Governor's Career and Technical Academy in Arlington will take place through Virginia Tech, under the banner of I-STEM education. The training will start in June 2008 with a three-day institute led by one of the developers of Virginia Tech's I-STEM program, Dr. Mark Sanders. This summer institute will focus on preparation of lead teachers in STEM integration in each of the five pathways.

$750 X 22 participants $16,500

Starting in fall 2008, Virginia Tech's program in I-STEM will be available for all staff of the Governor's Career and Technical Academy in Arlington, as well as other interested faculty and staff from Arlington Public Schools. Through the agreement between the Governor's Career and Technical Academy in Arlington and Virginia Tech, participants may pursue an array of

certificates or degrees. As a professional incentive, the partnership proposes to waive tuition for pathway faculty from the Governor's Career and Technical Academy in Arlington. Any faculty member seeking onward degrees also will be eligible for additional tuition assistance as per employee benefits and regulations of Northern Virginia Community College or Arlington Public Schools.

One credit course from Virginia Tech in I-STEM

$1,500 X 17 participants $25,500

Travel for professional development of faculty, administrators, and students.

$1,000 X 18 participants $18,000

The professional development of staff and student exposure to advances in STEM education that emerge across the country require that staff of the Governor's Career and Technical Academy in Arlington attend and participate fully in educational conferences, seminars, and meetings. The partnership proposes to dedicate professional development funds to the travel of select members of the faculty, administration, and students from the Governor's Career and Technical Academy in Arlington over the course of the first year. Although these funds will not be sufficient to cover costs for a comprehensive program to expose the community nationally, additional funds from Perkins and other sources will be made available according to the implementation budget.

Contractual Services $18,500

Communications budget for recruitment brochures for students, publicity brochures for potential partners and the general public, and a variety of promotional materials appropriate for general distribution.

Communications budget $6,000

Arlington's Career, Technical, and Adult Education Office will continue to evaluate the Arlington Career Center until it is integrated into the Governor's Career and Technical Academy in Arlington. The Governor's Career and Technical Academy in Arlington will be evaluated by its planning and advisory committees. Evaluation will include policies, procedures, and outcomes; review of program design; and instructional delivery. The review also will solicit feedback from stakeholders including students, staff, and parents, and from community,

postsecondary, and industry partners. An independent evaluator will be contracted to review and buttress internal reports with professional examination of programmatic outcomes and fiscal management. The evaluator will produce a comprehensive implementation status report on an annual basis. At full implementation, the external evaluator will provide expert assistance for the development of a strategic plan to ensure continuity in programming and in the trajectory of academic performance.

Independent Evaluator $12,500

Materials and Supplies $3,500

Additional funds for Materials and Supplies will be dedicated to planning committee efforts to disseminate the news about the Governor's Career and Technical Academy to potential partners, counselors, teachers, and of course, to the students.

Total Implementation Budget from State Funds $100,000

Salary and Benefits from other sources $316,800

Other funds used to support the Implementation Grant are made available through in-kind support from Northern Virginia Community College and from Arlington Public Schools. Over $240,000 in salaries, based on calculations of average faculty salary and benefits ($85,000 x 2 = $170,000) plus .65 of an assistant to the partnership ($16,000 salary) and a Career Coach ($54,000), will be provided by Arlington Public Schools and Northern Virginia Community College. Benefits are calculated on 32 percent of salary.

Staff Development $100,000

Staff development in the discipline of Integrated-STEM Education through Virginia Tech will move from the summer into a fall program with formal classes for faculty members of the Governor's Academy for Career and Technical Education in Arlington. Arlington Public Schools will dedicate a portion of its Tech Prep/Perkins funding to this effort. In addition, faculty members from Northern Virginia Community College hold tuition benefits which they will be able to use against these tuition costs should they choose to participate in the program beyond funding available from the grant. One hundred thousand dollars will be made available for

staffing, professional development, and other approved Perkins funds uses through Arlington Public Schools proposals to the Commonwealth for the coming fiscal year. The exact divisions of these costs will be determined by the professional development needs of the faculty, by the allowances given under the Perkins grant, and by the staffing requirements of the Governor's Career and Technical Academy in Arlington.

Travel **$5,000**

Additional travel not lodged against the travel line item is anticipated by planning and advisory committee members during the grant period.

Negotiated Indirect Overhead Cost Rate **$196,265**

Finally, the Implementation Grant allowed only 8 percent for indirect costs. However, Northern Virginia Community College is allowed a Negotiated Indirect Overhead Cost Rate with the Office of Management and Budget of the United States of 42.5 percent. These are costs associated with grants and grants-related activity and will total over $150,000. This Negotiated Indirect Overhead Cost Rate also represents an in-kind contribution to the planning effort for the Governor’s Career and Technical Academy in Arlington.

Total in-kind support for the implementation grant is expected to be: $658,065

Appendix A
Planning and Advisory Committees

Planning and Advisory Committees

Planning Committee

The Planning Committee for the Governor's Career and Technical Academy in Arlington has developed over the fall of 2007 and into the spring of 2008 as a working partnership that will drive the processes needed to open the doors of this Governor's Career and Technical Academy in September 2008. The initiative promises to integrate science, technology, engineering, and mathematics education with career and technical education in the innovative framework of an optional joint five-year high school, which will strengthen career pathways in northern Virginia.

The Career and Technical Academy in Arlington planning committee was drawn from the business community, Northern Virginia Community College, Arlington Public Schools, and Virginia Tech, as well as government and nongovernment agencies and organizations intimately involved with the promotion of STEM education regionally and nationally. The members of the committee were designated by the executives of the participating institutions and reflect the full commitment from these institutions in the design and development of this unique educational model.

The planning committee has met frequently and will continue to do so on a regular basis to fulfill the terms of the grant and forward a proposal to the Board of Education under the schedule outlined in the *January 2008 VDOE Guidance Manual.*

Planning Committee

Name	Affiliation	Title
Milan Hayward* Co-Chair	Northern Virginia Community College	Special Assistant, Career and Technical Education
Michael Morton* Co-Chair	Arlington Public Schools	Director, Career, Technical, and Adult Education
Gerald Caputo* Deputy Co-Chair	Arlington Public Schools	Principal, Arlington Career Center
Jim Egenrieder* Deputy Co-Chair	Virginia Tech	Science Education Advisor, School of Education
Robert Henderson* Compliance/Comptroller	Northern Virginia Community College	Office of Grants and Special Projects
Ashley Albert* Reporting Secretary	Arlington Public Schools	Administrative Specialist, Career, Technical, and Adult Education
Kris Martini*	Arlington Public Schools	Supervisor, Technology Education/Trade & Industrial Education
Phyllis Gandy*	Arlington Public Schools	Supervisor, Business and Information Technology, Computer Science and Marketing
Charlotte Calobrisi*	Northern Virginia Community College	Special Assistant for Dual Enrollment
David Welsh*	Arlington Public Schools	Career and Technical Education Specialist, Arlington Career Center
Andrew Cornell	Northern Virginia Community College	Dean of Allied Health
Robert Woodke	Northern Virginia Community College	Associate Professor of Engineering
Jonathan Gueverra	Northern Virginia Community College	Provost, Alexandria Campus
Sharon N. Robertson	Northern Virginia Community College	Associate Vice President for Academic Services
John Min	Northern Virginia Community College	Dean of Business
Dr. Tony Stanzo	Northern Virginia Community College	Dean of Arts and Public Services
Mark Johnston	Arlington Public Schools	Assistant Superintendent, Department of Instruction
Howard Feldstein	Arlington Employment Center	Director
David Bain	Viral Media Productions, LLC	Chief Innovation Officer
Michael Connet	Nortel	Chief Academic Officer
Ron Bittinger	Passport Nissan, Passport Nissan	Service Director
Michael Haney	National Science Foundation	Program Director
Stanley Rodia	American Service Center	Director, Parts & Service

* Executive Committee

Advisory Committee

The Governor's Career and Technical Academy in Arlington Advisory Committee is drawn from the group of supporters and potential partners informed in national and Commonwealth policy trends and initiatives in STEM education and in the evolution of secondary and higher education in the Commonwealth as well as representatives from the communities of representing business and local government. The advisory committee will meet quarterly to review the progress of the initiative and provide commentary on areas of functional and specialized interest.

Advisory Committee

Name	Affiliation	Title
Milan Hayward* Co-Chair	Northern Virginia Community College	Special Assistant, Career and Technical Education
Michael Morton* Co-Chair	Arlington Public Schools	Director, Career, Technical, and Adult Education
Jim Egenrieder* Deputy Co-Chair	Virginia Tech	Science Education Advisor, School of Education
Gerald Caputo* Deputy Co-Chair	Arlington Public Schools	Principal, Arlington Career Center
Robert Henderson* Compliance/Comptroller	Northern Virginia Community College	Office of Grants and Special Projects
Vance Ablott	Triangle Coalition	President
John Andelin	Arlington Public Schools Career, Technical, and Adult Education Advisory Committee	Chair
Betsy Brand	American Youth Policy Forum	Director
Jonathan Gueverra	Northern Virginia Community College	Provost, Alexandria Campus
Gerhard Salinger	National Science Foundation	Advanced Technology Education Program Director

* Executive Committee

May 02 08 02:03p Arlington Career Center 7032285815 p.3

NOVA
Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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NOVA Governor's Career & Technical Academy

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Governor's Career and Technical Academy in Arlington

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Governor's Career and Technical Academy in Arlington

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May 01 2008 1:22PM RPS CTAE 7032287205 p.3

NOVA
Governor's Career & Technical Academy

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Governor's Career and Technical Academy in Arlington

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May 01 2008 1:23PM RPS CTAE 7032287205 p.1

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NOVA
Governor's Career & Technical Academy

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NOVA
Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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Governor's Career and Technical Academy in Arlington

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NOVA
Governor's Career & Technical Academy

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Governor's Career and Technical Academy in Arlington

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Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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Governor's Career and Technical Academy in Arlington

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Apr 29 08 09:33a VPAAPS 7038456060 p.2

NOVA
Governor's Career & Technical Academy

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Governor's Career and Technical Academy in Arlington

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NOVA Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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NOVA Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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NOVA Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

APPROVING SIGNATURES:

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NOVA Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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NOVA
Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

APPROVING SIGNATURES:

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NOVA Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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NOVA
Governor's Career & Technical Academy

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Governor's Career and Technical Academy in Arlington

APPROVING SIGNATURES:

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Apr 28 08 03:10p American Youth Policy For 2027759733 p.1

NOVA
Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

Governor's Career and Technical Academy in Arlington

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04/30/2008 08:59 FAX 003

NOVA Governor's Career & Technical Academy

Planning/Advisory Committee Signature Sheets

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4201 Wilson Blvd Rm 863
Arlington VA 22203

APPROVING SIGNATURE:

TITLE: Program Officer

DATE: 4/30/08

Appendix B
Memorandum of Agreement

Memorandum of Agreement

Signatories to the Memorandum of Agreement

Dr. Robert G. Templin, Jr.	Northern Virginia Community College	President
Dr. Robert G. Smith	Arlington Public Schools	Superintendent
Mark Johnston	Arlington Public Schools	Assistant Superintendent, Department of Instruction
Michael Morton	Arlington Public Schools	Director, Career, Technical, and Adult Education
Gerald Caputo	Arlington Public Schools	Principal, Arlington Career Center
David Bain	Viral Media Productions, LLC	Chief Innovation Officer
Ron Bittinger	Passport Nissan	Service Director
Jonathan Gueverra	Northern Virginia Community College	Provost, Alexandria Campus
Milan Hayward	Northern Virginia Community College	Special Assistant, Career and Technical Education
Betsy Brand	American Youth Policy Forum	Director
Howard Feldstein	Arlington Employment Center	Director
Stanley Rodia	American Service Center	Director, Parts & Service
Dr. Mark McNamee	Virginia Tech	Provost
Michael Connet	Nortel	Chief Academic Officer

MEMORANDUM OF AGREEMENT

BETWEEN

AND

Participating Partners in the Governor's Career and Technical Academy in Arlington

PARTNERS to this Agreement support the objectives of the Governor's Career and Technical Academy in Arlington to broaden the scope of K-16 Science, Technology, Engineering, and Mathematics (STEM) educational experiences in Northern Virginia through Career and Technical Education. The Governor's Career and Technical Academy in Arlington will be jointly operated by Northern Virginia Community College (NOVA) and Arlington Public Schools (APS).

PROJECT VISION

The Governor's Career and Technical Academy in Arlington will foster a vibrant economy for the Northern Virginia region and the Commonwealth by educating and training innovators and technologists necessary for supporting the global competitiveness of communities and businesses in the region. Initial project focus will be on the development of CTE program pathways within Engineering and Technology, Audio and Video Technology and Film, (Health Science) Support Services, Information Support and Services, and Facility and Mobile Equipment Maintenance pathways. The project's middle college will provide the opportunity for qualified students to earn a high school diploma and college associate degree in five years. Based on regional work force needs, expansion is possible into career areas such as geospatial technologies, modeling and simulation, biotechnology, and other fields of Innovation, Technology and Engineering.

MOA TIMEFRAME

The MEMORANDUM OF AGREEMENT period of performance shall be February 28, 2008 through June 30, 2009, extending forward annually unless modified by mutual agreements, or terminated by a partner. Any partner may withdraw on 90 days written notice to the other partners.

PARTNERS AGREEMENT

Co-lead partner Northern Virginia Community College agrees to:

- Serve as the project's Lead Agency and Fiscal Agent to the Virginia Department of Education, and provide documentation and information as requested;
- Establish and facilitate a project Advisory Committee with partners and sponsors and a Planning Committee for the implementation of the grant, to which all grant budget matters will be reported;
- Assist (to be determined) co-lead partner with the operational costs of the Governor's Career and Technical Academy in Arlington;

- Provide co-leadership with Arlington Public Schools for developing and communicating project vision and implementation;
- Coordinate and monitor the implementation of Program of Studies and staff development initiatives, and assure compliance with all Commonwealth educational standards and Arlington Public Schools policies;
- Provide program evaluation and oversee dual-enrolled courses as required by the Virginia Community College System;
- Coordinate closely with project staff in the development and distribution of recruitment and marketing materials;
- Support the project's on-site Career Coach, Student Services, Teaching Faculty, and on-site Administrative personnel through available resources;
- Coordinate all project initiatives with the divisional Superintendent(s) and Career and Technical Director(s); and
- Work with co-lead partner to establish a business model that will promote the long-term sustainability of the Governor's Career and Technical Academy in Arlington.

Co-lead partner Arlington Public Schools agrees to:

- Assure that resources are provided to implement approved Governor's Career and Technical Academy in Arlington programs subject to the appropriation of funds by the School Board;
- Designate a liaison(s) and co-chair of project Planning and Advisory Committees;
- Provide the Principal of the Arlington Career Center to serve as school-based leadership for the communication and implementation of programs;
- Recruit, select, and enroll students, including implementation of strategies to recruit non-traditional, ESL, and minority representation;
- Provide counseling and other services that promote STEM education, career pathways, educational advancement K-16, and employment opportunities for students;
- Provide support and resources for APS approved programs and activities and assure that, where appropriate, School Board approved courses meet accreditation and DOE standards and course faculty meet DOE licensure requirements;
- Assure that all approved dual enrollment courses are aligned with content standards and faculty credentialing requirements and meet Virginia Department of Education requirements;
- Assure adequate staff development, support, training and credentialing for faculty as required, in accordance with policy and budget;
- Provide adequate IT hardware, software and technical support for instruction as approved;
- Provide a contact for collection and reporting of project data required for assessment and evaluation and for coordination with reporting requirements to fulfill the program vision;
- Follow business practices as established in existing dual enrollment agreements; and
- Work with co-lead partner to establish a business model that will promote the long-term sustainability of the Governor's Career and Technical Academy in Arlington.

Professional development partner Virginia Polytechnic Institute and State University (Virginia Tech) agrees to:

- Designate a key contact person to serve as liaison and active participant in Planning and Advisory Committees;
- Participate in planning, organization, and delivery of professional development training seminars for NOVA faculty and Arlington Public School teachers, counselors and administrators, when feasible;
- Provide academic advising for NOVA faculty and Arlington Public School teachers, counselors and administrators applying to the graduate school, and enrolling and scheduling Virginia Tech's Integrative STEM graduate courses;
- Participate in planning and strategy sessions to advance the teaching capacity and institutional knowledge of project faculty; and
- Provide a contact person for the submission of demographic and instructional data for project assessment and evaluation according to organizational policies.

Business Sponsors (current and future partners) agree to:

- Designate a key contact person(s) to serve as liaison and active participant in the Advisory Committee;
- Provide personnel resources, volunteers or other experts, and financial resources, as agreed upon, to assist in the planning, delivery, or offering of Governor's Career and Technical Academy in Arlington programs;
- Provide technical expertise to assure that the project curriculum and instruction reflects industry standards and prepares students for the intended work force;
- Share information with other business leaders to recruit additional partners and sponsors;
- Provide opportunities, as agreed upon, for Governor's Career and Technical Academy in Arlington students to receive real world experiences through internships, mentorships, and/or project based learning;
- Offer Governor's Career and Technical Academy in Arlington graduates access to employment opportunities within your organization as agreed upon; and
- Provide or assist in procuring instructional and professional development resources.

Non-Profit Organizations (current and future partners) agree to:

- Designate one or more key contact person(s) to serve as liaison and active participant in the Advisory Committee;
- Assist in the planning, delivery, or offering of the Governor's Career and Technical Academy in Arlington programs, providing financial resources as agreed upon;
- Share information with other organizations to recruit additional partners and sponsors;
- Assist in developing and implementing strategies for the recruitment and enrollment of non-traditional and minority students, as agreed upon;
- Provide or assist in procuring instructional and professional development resources and provide organizational leadership for the communication and implementation of agreed upon Programs; and
- Provide personnel resources, as agreed upon.

By signing this agreement, these institutions agree to be active partners and agree to abide by this agreement. Other partners pledge their support to The Governor's Career and Technical Academy in Arlington through their participation on the planning and advisory committees.

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

June 5, 2008
DATE

Dr. Robert G. Smith
Arlington Public Schools

June 6, 2008
DATE

SIGNATURE:
NAME: Mark Johnston
INSTITUTION: Arlington Public Schools
DATE: June 6, 2008

SIGNATURE:
NAME: Jonathan Gueverra
INSTITUTION: Northern Virginia Community College
DATE: June 6, 2008

SIGNATURE:
NAME: Michael Morton
INSTITUTION: Arlington Public Schools
DATE: June 6, 2008

SIGNATURE:
NAME: Milan Hayward
INSTITUTION: Northern Virginia Community College
DATE: June 6, 2008

SIGNATURE:
NAME: Jerry Caputo
INSTITUTION: Arlington Public Schools
DATE: June 6, 2008

SIGNATURE:
NAME: Betsy Brand
INSTITUTION: American Youth Policy Forum
DATE: June 6, 2008

SIGNATURE
NAME: David Bain
INSTITUTION: Viral Media Productions
DATE: June 6, 2008

SIGNATURE:
NAME: Howard Feldstein
INSTITUTION: Arlington Employment Center
DATE: June 6, 2008

SIGNATURE:
NAME: Ron Bittinger
INSTITUTION: Passport Nissan
DATE: June 6, 2008

SIGNATURE:
NAME: Stanley Rodia
INSTITUTION: American Service Center
DATE: June 6, 2008

SIGNATURE:
NAME: Mark McNamee
INSTITUTION: Virginia Tech
DATE: June 10, 2008

SIGNATURE:
NAME: Michael Connett
INSTITUTION: Nortel LearniT
DATE: June 6, 2008

Appendix C
Industry Employment and Projections

Industry Employment and Projections

Industry Employment and Projections Data in Virginia
Statewide from Base Year 2004 to Projected Year 2014

Industry Code	Industry Title	Estimated Employment	Projected Employment	Total Employment Change	Annual Avg. Percent Change	Total Percent Change
000000	Total Employment, All Jobs	3,871,342	4,531,580	660,238	1.59	17.1
101000	Goods-Producing	602,927	620,532	17,605	0.29	2.9
101100	Natural Resources and Mining	73,204	70,123	-3,081	-0.43	-4.2
101200	Construction	231,075	262,265	31,190	1.27	13.5
101300	Manufacturing	298,648	288,144	-10,504	-0.36	-3.5
102000	Services-Providing	2,945,051	3,564,299	619,248	1.93	21.0
102100	Trade, Transportation, and Utilities	647,712	720,920	73,208	1.08	11.3
102200	Information	100,277	115,867	15,590	1.46	15.5
102300	Financial Activities	187,063	220,961	33,898	1.68	18.1
102400	Professional and Business Services	577,598	782,965	205,367	3.09	35.6
102500	Education and Health Services	638,522	801,165	162,643	2.30	25.5
102600	Leisure and Hospitality	320,045	388,926	68,881	1.97	21.5
102700	Other Services (Except Government)	123,432	142,000	18,568	1.41	15.0
102800	Government	350,402	391,495	41,093	1.12	11.7

Source: Projections Team and Bureau of Labor Statistics

Appendix D
Assurances

Assurances

The signatures on this page certify the following to the Virginia Department of Education:

1. The planning committee has reviewed the provisions of *Administrative Procedures Guide for the Establishment of Governor's Career and Technical Academies* outlined in the Guidance Manual, and understands that the following implementation proposal addresses these criteria and others approved by the Virginia Board of Education.
2. The planning committee agrees to follow the guidelines set forth in the *Administrative Procedures for the Establishment of Governor's Career and Technical Academies*.
3. The Governor's Career and Technical Academy will be a jointly operated program, and an ongoing governing board will be established to reflect current Board of Education regulations relative to jointly operated schools and programs.
4. Northern Virginia Community College will serve as the grant fiscal agent.

Certification by Authorized Institutional Officials:

The applicant certifies that, to the best of his 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 Career and Technical Academy, and that the applicant will comply with the above statement of assurances.

Dr. Robert G. Templin, Jr., President, Northern Virginia Community C

February 29, 2008

Dr. Robert G. Smith, Superintendent, Arlington Public Schools

February 28, 2008

Northern Virginia Community College (NOVA) will serve as the fiscal agent for this grant and program, and, as a public entity, is capable of filling this function for the duration of the program.

Mr. David Courter, Acting Vice President for Finance and Administration, Northern Virginia Community College

April 29, 2008

Appendix E
Gap Analysis

Gap Analysis

Federal Career Cluster: Transportation, Distribution & Logistics
Pathway: Facility and Mobile Equipment Maintenance

High School Certifications	ASE Certifications	Brakes, Engines, Electrical, Steering and Suspension
	Shop Safety and Pollution Prevention Certification	
Industry Credentials (Preparation provided through Northern Virginia Community College coursework)	ASE Certifications (9)	Engine Repair (A1), Automotive Transmission/Transaxle (A2), Manual Drive train and Axles (A3), Suspension and Steering (A4), Brakes (A5), Electrical Systems (A6), Heating and Air Conditioning (A7), Engine Performance (A8), Advanced Engine Performance Specialist (L1)
	Refrigerant Safety and Handling	
	Emissions Mechanic	
Postsecondary Certificates, Diplomas or Associate Degrees	A.A.S. Automotive Technology (Northern Virginia Community College)	
National Workforce Needs	U.S. Department of Labor Statistics, Virginia View (www.vaview.vt.edu)	772,675 in 2006 projected to grow to 883,131 by 2016 with a 14.3 percent change
Virginia Strategic Growth Area		Project 16.5 percent growth for Automotive Technicians in the state of Virginia compared to 14.3 percent national growth.
Regional Workforce Needs		6,670 projected to 7,729 by 2014, 15.9 percent The Northern Virginia Workforce Investment Board projects a 14 percent growth for the region.
Relationship to STEM	Automotive Technology incorporates science, technology, engineering, and mathematics.	
Diplomas and Seals	Advanced Technical Seal Standard and Advanced Diploma State Scholars Core	

Federal Career Cluster: Information Technology
Pathway: Information Support and Services

High School Certifications	Students begin certification programs (to be completed at Northern Virginia Community College)	
Industry Credentials (Preparation provided through Northern Virginia Community College coursework)	CCNA (Cisco Certified Network Administrator)	
	CompTIA A+	
Postsecondary Certificates, Diplomas or Associate Degrees	A.S. Information Technology (Northern Virginia Community College) AAS Information Systems Technology (Northern Virginia Community College)	
Virginia Strategic Growth Area	Virginia Employment Commission, Virginia's Electronic Labor Market Access (http://velma.virtuallmi.com)	Predicts computer-related careers (e.g., programmers, network analysts, database administrators) to be among the 20 fastest-growing occupations in Virginia with projected increase in job openings between 48 and 69 percent between 2002 and 2012.
Regional Workforce Needs	Greater Washington Knowledge Worker	28.0 percent growth is projected for the Greater Washington Region between 2005 and 2014 increasing from 219,950 to a projected 281,540
Relationship to STEM	Information Technology is incorporated through the 'T' is STEM and is infused throughout mathematics, science, and engineering as well.	
Diplomas and Seals	Advanced Technical Seal Advanced Diploma Commonwealth Scholars Core	

Appendix F
Commonwealth Scholars Course of Study

Commonwealth Scholars Course of Study

- 4 English courses
- 3 Mathematics courses
- 3 Laboratory science courses
- 3.5 History and social science courses (choose from U.S. and Virginia history, World history, U.S. and Virginia government, world geography, economics, financial literacy)
- 1 Fine arts or career and technical education course
- 2 Foreign language courses (in the same language)
- To earn a high school diploma in Virginia, students must meet all graduation requirements including verified credits.

Appendix G
Certifications

Certifications

Preparation for Certifications Available through the Arlington Career Center

NAME	#EARNED	#TESTED	PERCENT PASSED
ADOBE PHOTOSHOP	2	2	100
COMPUTER FORENSIC	1	1	100
COMPUTER FUNDAMENTAL (MAC OS X)	1	1	100
COMPUTER FUNDAMENTAL (WIN 2000)	1	1	100
EMT	28	28	100
FAA PRIVATE PILOT	8	16	50
FLASH MX	4	4	100
HVAC EPA 608 REFRIGERENT RECOVERY	2	5	40
IC3 CERTIFICATION	6	121	5
INTERNET SECURITY	1	1	100
JAVAI	5	8	63
MOS WORD 2003	4	14	29
NAT'L PROF CERTIFICATION	8	12	67
NETWORKING CONCEPTS	1	5	20
NOCTI ACCOUNTING BASIC	1	10	10
NOCTI CARPENTRY	2	11	18
NOCTI COMMERCIAL FOODS	1	4	25
NOCTI EARLY CHILDHOOD	5	11	45
NOCTI TELEVISION	13	31	42
PETFIRSTAID&CPR	60	60	100
RBT COPPER-BASED NETWORK CABLING	8	8	100
RBT SYSTEMS FIBER OPTICS NETWORK CABLING	4	6	67
RED CROSS CPR	43	48	90
RED CROSS STANDARD FIRST AID	45	48	94

CIW	CIW Associate (Certified Internet Webmaster Associate)
CompTIA	A+ Network+ (Hardware) I-Net+ (Software) Security+ Linux+
Cisco	CCENT (Cisco Certified Entry Network Technician) CCNA (Cisco Certified Networking Associate) CCNP (Cisco Certified Networking Professional)
Oracle	OCP (Oracle 10g Database Admin Certified Professional) OCA (Oracle 9i Database Admin Certified Associate) OCP (Oracle 9i Database Admin Certified Professional) OCA (Oracle9i PL/SQL Developer Certified Associate) OCP (Oracle9i Forms Developer Certified Professional) OCA (Oracle 10g Database Admin Certified Associate)
Planet 3 Wireless	CWNA (Certified Wireless Network Administrator)
(ISC)2	CISSP (Certified Info Systems Security Professional)
Certiport	IC3 (Internet and Computing Core Certification)
Adobe	Certified Dreamweaver MX 2004 Developer Certified Flash MX 2004 Developer Certified Flash MX 2004 Designer Certified Cold Fusion MX 7 Developer+
Red Hat	Red Hat Certified Engineer Red Hat Certified Technician
Microsoft	MCP (non-specific) MCP (programming) MCDST (Certified Desktop Support Technician) MCSA (Microsoft Certified Systems Admin) MCSE Microsoft Certified Systems Engineer Microsoft Office Specialist
Sun	Sun Certified Programmer for Java 2

Appendix H
Pathways

Pathways

Federal Career Cluster: Science, Technology, Engineering & Mathematics
Pathway: Engineering and Technology
Related Northern Virginia Community College Program: Associate of Science in Engineering

Governor's Career & Technical Academy in Arlington

GRADE	English	Math	Science	Social Studies	Elective	Elective	Elective
Interest Inventory Administered and Plan of Study Initiated for all Learners							
7	English Language Arts	Math 7	Life Science	US History 1865 - Present	Elective	Health and Physical Education	Elective
8	English Language Arts	Math 8 or Algebra I (3130)	Physical Science	World Geography	Elective	Health and Physical Education	Elective
9	English 9 (1130)	Algebra I (3130) or Geometry (3143)	Biology (4310) or Earth and Space Science (4210)	World History (2216)	Foreign Language	P.E. Health I (7320 and 7310)	Elective
10	English 10 (1140)	Geometry (3143) or Algebra II (3135)	Chemistry (4410)	Economics (2800)	Foreign Language	P.E. Health II (7400)	Engineering 1
11	English 11 (1150) or AP English Language and Composition (1196)	Algebra II (3135) or Precalculus (3162)	Principles of Physics (4500), Physics (4510), or Intensified Physics (4515)	Virginia and American History (2360) or AP Virginia and American History (2319)	Foreign Language	Engineering 2 (8492)	
College Placement Assessments-Academic/Career Advisement Provided							
12	English 12 (1160) or AP English Literature and Composition (1195)	Precalculus (3162) or AP Calculus AB/BC (3177/3179) or Statistics (3190), Multivariable Calculus (3178)	AP Biology (4370), AP Chemistry (4470), or AP Physics (4570)	Virginia and US Government (2440) or AP Virginia and US Government (2445)	Dual enrollment Foreign Language	Engineering 3/4 (6672/6671)	
Courses to be Considered for Dual Enrollment for Completion of Associate of Science Degree							
12	ENG 111/ENG 112 (College Composition I & II)	MTH 173/ MTH 174 (Calculus with Analytical Geometry I & II)	CHEM 111/CHEM 112 (College Chemistry I & II)	PLS 211/PLS 212 (U.S. Government I & II)	Dual enrollment Foreign Language	EGR 120/ EGR 126 (Introduction to Engineering/Computer Programming for Engineers)	SDV 100 (College Success Skills)
Northern Virginia Community College							
Year 13	SPD 100 (3 credits)/ SPD 110 (3 credits)	MTH 277 (4 credits)/ EGR 246 (3 credits)	PHY 231 (5 credits) / PHY 232 (5 credits)	EGR 240 (3 credits)	EGR 206 (2 credits)/ EGR 245 (3 credits)	PED 116 (1 credit) / RPK 100 (1 credit)	

Federal Career Cluster: Arts, Audio/Video Technology & Communications
Pathway: Audio and Video Technology and Film
Related Northern Virginia Community College Program: Associate of Science in Social Science or Associate of Arts in Liberal Arts

Governor's Career & Technical Academy in Arlington

GRADE	English	Math	Science	Social Studies	Elective	Elective	Elective
Interest Inventory Administered and Plan of Study Initiated for all Learners							
7	English Language Arts	Math 7	Life Science	US History 1865 - Present	Elective	Elective	Health and Physical Education
8	English Language Arts	Math 8 or Algebra	Physical Science	World Geography	Elective	Elective	Health and Physical Education
9	English 9 (1130)	Algebra I (3130) or Geometry (3143)	Biology (4310) or Earth and Space Science (4210)	World History (2216)	Elective	Intro to IT (8483)	P.E. Health I (7320 and 7310)
10	English 10 (1140)	Geometry (3143) or Algebra II (3135)	Chemistry (4410)	Economics (2800)	Elective	Computer Science I (6640)	P.E. Health II (7400)
11	English 11 (1150) or AP English Literature and Composition (1196)	Algebra II (3135) or Precalculus (3162)	Principles of Physics (4500), Physics (4510), or Intensified Physics (4515)	Virginia and American History (2360) or AP Virginia and American History (2319)	Video Production I (8689) or Commercial Arts I (8571)		Dual enrollment Chinese (5610/5611) or Arabic (5810/5811)
College Placement Assessments-Academic/Career Advisement Provided							
12	English 12 (1160) or AP English Literature and Composition (1195)	Precalculus (3162) or AP Calculus AB/BC (3177/3179) or Statistics (3190), Multivariable Calculus (3178)	AP Biology (4370), AP Chemistry (4470), or AP Physics (4570)	Virginia and US Government (2440) or AP Virginia and US Government (2445)	Video Production II (8690) or Graphics for the Web (8635)		Dual enrollment Chinese (5620/5621) or Arabic (5820/5821)
Courses to be Considered for Dual Enrollment							
12	To be determined by student's academic requirements for completion of degree.						
Northern Virginia Community College							
Year 13	To be determined by student's academic requirements for completion of degree.						

Federal Career Cluster: Health Science
Pathway: Support Services
Related Northern Virginia Community College Programs: Career Studies Certificates

Governor's Career & Technical Academy in Arlington

GRADE	English	Math	Science	Social Studies	Elective	Elective	Elective
Interest Inventory Administered and Plan of Study Initiated for all Learners							
7	English Language Arts	Math 7	Life Science	US History 1865 - Present	Elective	Health and Physical Education	Elective
8	English Language Arts	Math 8 or Algebra	Physical Science	World Geography	Elective	Health and Physical Education	Elective
9	English 9 (1130)	Algebra I (3130) or Geometry (3143)	Biology (4310) or Earth and Space Science (4210)	World History (2216)	Foreign Language	P.E. Health I (7320 and 7310)	Elective
10	English 10 (1140)	Geometry (3143) or Algebra II (3135)	Chemistry (4410)	Economics (2800)	Foreign Language	P.E. Health II (7400)	Elective
11	English 11 (1150) or AP English Literature and Composition (1196)	Algebra II (3135) or Precalculus (3162)	Principles of Physics (4500), Physics (4510), or Intensified Physics (4515)	Virginia and American History (2360) or AP Virginia and American History (2319)	Emergency Medical Technician (8334)		Elective
College Placement Assessments-Academic/Career Advisement Provided							
12	English 12 (1160) or AP English Literature and Composition (1195)	Precalculus (3162) or AP Calculus AB/BC (3177/3179) or Statistics (3190), Multivariable Calculus (3178)	AP Biology (4370), AP Chemistry (4470), or AP Physics (4570)	Virginia and US Government (2440) or AP Virginia and US Government (2445)	Physical Therapy (8332)	Dual enrollment Chinese (5610/5611) or Arabic (5810/5811)	Elective
Courses to be Considered for Dual Enrollment for Completion of Career Studies Certificate							
12	To be determined by student's academic requirements for completion of career studies certificate.						
Northern Virginia Community College							
Year 13	To be determined by student's academic requirements for completion of career studies certificate.						

Federal Career Cluster: Information Technology
Pathway: Information Support and Services
Related Northern Virginia Community College Program: Associate of Science in Information Technology or Associate of Applied Science in Information Technology

Governor's Career & Technical Academy in Arlington

GRADE	English	Math	Science	Social Studies	Elective	Elective	Elective
Interest Inventory Administered and Plan of Study Initiated for all Learners							
7	English Language Arts	Math 7	Life Science	US History 1865 - Present	Elective	Health and Physical Education	Elective
8	English Language Arts	Math 8 or Algebra	Physical Science	World Geography	Elective	Health and Physical Education	Elective
9	English 9 (1130)	Algebra I (3130) or Geometry (3143)	Biology (4310) or Earth and Space Science (4210)	World History (2216)	Intro to IT (6116)	P.E. Health I (7320 and 7310)	Elective
10	English 10 (1140)	Geometry (3143) or Algebra II (3135)	Chemistry (4410)	Economics (2800)	Computer Science I (6640)	P.E. Health II (7400)	Elective
11	English 11 (1150) or AP English Literature and Composition (1196)	Algebra II (3135) or Precalculus (3162)	Principles of Physics (4500), Physics (4510), or Intensified Physics (4515)	Virginia and American History (2360) or AP Virginia and American History (2319)	Computer Science II (6641)	Foreign Language	Elective
College Placement Assessments-Academic/Career Advisement Provided							
12	English 12 (1160) or AP English Literature and Composition (1195)	Precalculus (3162) or AP Calculus AB/BC (3177/3179) or Statistics (3190), Multivariable Calculus (3178)	AP Biology (4370), AP Chemistry (4470), or AP Physics (4570)	Virginia and US Government (2440) or AP Virginia and US Government (2445)	Computer Science Advanced Topics (6645)	Elective	Elective
Courses to be Considered for Dual Enrollment for Completion of Associate of Science Degree							
12	DE ENG 111/112 (College Comp I & II)	DE MTH 163 (Precalculus I or higher)/MTH 271 (Applied Calculus I)	DE Natural Science/Lab Elective	DE PLS 211-212 (U.S. Government I &II)	DE Foreign Language	DE ITE 115 (Intro to Computer App & Concepts)/ ITN 100 (Intro to Telecomm.)	DE SDV 100 (College Success Skills)
Northern Virginia Community College							
Year 13	ITP 120 (4 credits)/ITD 256 (3 credits)	ITE 221 (3 credits)	HIS Elective (3 credits)	SPD 110 (3 credits)	ITE 170 (3 credits)/ ITP 100 (3 credits)	PED 116 (1 credit/RPK activities course (1 credit)	

Federal Career Cluster: Transportation, Distribution & Logistics
Pathway: Facility and Mobile Equipment Maintenance
Related Northern Virginia Community College Program: Associate of Applied Science in Automotive Technology

Governor's Career & Technical Academy in Arlington

GRADE	English	Math	Science	Social Studies	Elective	Elective	Elective
Interest Inventory Administered and Plan of Study Initiated for all Learners							
7	English Language Arts	Math 7	Life Science	US History 1865 - Present	Elective	Health and Physical Education	Elective
8	English Language Arts	Math 8 or Algebra	Physical Science	World Geography	Elective	Health and Physical Education	Elective
9	English 9 (1130)	Algebra I (3130) or Geometry (3143)	Biology (4310) or Earth and Space Science (4210)	World History (2216)	Foreign Language	P.E. Health I (7320 and 7310)	Elective
10	English 10 (1140)	Geometry (3143) or Algebra II (3135)	Chemistry (4410)	Economics (2800)	Foreign Language	P.E. Health II (7400)	Automotive Technology I (8506)
11	English 11 (1150) or AP English Literature and Composition (1196)	Algebra II (3135) or Precalculus (3162)	Principles of Physics (4500), Physics (4510), or Intensified Physics (4515)	Virginia and American History (2360) or AP Virginia and American History (2319)	Foreign Language		Automotive Technology II (8507) - Dual enrollment with AUT 100 (2 credits) and AUT 267 (4 credits)
College Placement Assessments-Academic/Career Advisement Provided							
12	English 12 (1160) or AP English Literature and Composition (1195)	Precalculus (3162) or AP Calculus AB/BC (3177/3179) or Statistics (3190), Multivariable Calculus (3178)	AP Biology (4370), AP Chemistry (4470), or AP Physics (4570)	Virginia and US Government (2440) or AP Virginia and US Government (2445)	Dual enrollment Foreign Language		Automotive Technology III (8508) (Dual enrollment with AUT 266)
Courses to be Considered for Dual Enrollment for Completion of Associate of Applied Science Degree							
12	ENG 111/ENG 112 (College Composition I & II)	MTH 151/ MTH 152 (Math for the Liberal Arts I & II)	PHY 101/PHY 102 (Introduction to Physics I & II)	PLS 211/PLS 212 (U.S. Government I & II)	AUT 111/AUT 266 (Automotive Engines I/Auto Alignment Suspension & Steering)	AUT 241 (Automotive Electricity I)	SDV 100 (College Success Skills)
Northern Virginia Community College							
Year 13	SPD 110 (3 credits)	AUT 121 (4 credits)/ AUT 112 (4 credits)	AUT 122 (4 credits)/ AUT 236 (4 credits)	AUT 141 (4 credits)/ AUT 142 (4 credits)	AUT 242 (4 credits)/ AUT 245 (4 credits)	PED 116 (1 credit)/ RPK 100 (1 credit)	

Appendix I

Virginia Tech Program in Integrative STEM Education

Virginia Tech Program in Integrative STEM Education

VirginiaTech
College of Liberal Arts and Human Sciences

STEM Education
300 War Memorial Hall (0313)
Blacksburg, Virginia 24061
540/231-8173 Fax: 540/231-9075
http://TechEd.vt.edu/TE/STEM.html msanders@vt.edu

Integrative STEM Education Program
Graduate Certificate & Degree Options at VIRGINIA TECH

In Spring 2006, Virginia Tech (VT) became the first in the US to offer an *Integrative STEM Education* graduate program. These new graduate degree options develop 21st century K-16 STEM educators, leaders, scholars, and researchers prepared to investigate, teach, and disseminate new integrative approaches to STEM teaching and learning. Our focus on the investigation and application of new integrative approaches to STEM education uniquely sets us apart from other STEM programs. *Integrative STEM Education* is wholly consistent with, and is an exemplar of, the recommendations of the seminal STEM education reform publications of the past two decades, including *Science for All Americans*, *Benchmarks for Science Literacy*, *Principles and Standards for School Mathematics*, *National Science Education Standards*, *Standards for Technological Literacy*, and *Educating the Engineer of 2020*.

Integrative STEM Education Core Classes*

- STEM Education Pedagogy
- STEM Education Foundations
- STEM Education Research
- STEM Education Trends & Issues
- STEM Education Field Study

*Offered on the VT campus since Spring 2006 and online since Fall 2007.

Integrative STEM Education Certificate** and Degree Options

Certificate Program:** 12 graduate semester hours (from the *Integrative STEM Education* core above) that prepare educators and leaders to teach and/or facilitate new integrative approaches in STEM education.
** The Certificate option is pending university approval; all other degrees offered since Spring 2006.

Master's Degree: A program primarily for K-12 STEM educators and related fields that develops 21st century STEM educators, leaders and scholars by facilitating broader understanding of the intersections among the STEM/ STEM education disciplines and new integrative approaches for the teaching/learning STEM content.

Education Specialist (EdS) Degree: A program for those holding master's degrees in education and STEM fields that develops STEM educators, leaders, and scholars for the 21st century. Scholar/practitioners in this program expand their understanding of integrative STEM/STEM education, investigate curricular connections among the STEM subject areas, and apply integrative strategies to the design of instructional materials for teaching and learning STEM concepts.

Doctor of Education (EdD) Degree: A doctoral program designed primarily to prepare 21st century K-16 STEM educators, leaders, and scholars for postsecondary teaching, teacher education, and leadership positions.

Doctor of Philosophy (PhD) Degree: A doctoral program designed principally to develop 21st century university-level STEM educators, researchers, scholars, and leaders who wish to conduct research pertaining to teaching and learning, as situated at the intersections of the STEM education disciplines.

For More Information

Mark Sanders, School of Education, 300 War Memorial Hall, Virginia Tech, Blacksburg, VA 24061-0313
(540) 231-8173 (540) 231-9075 (fax) <msanders@vt.edu> **http://TechEd.vt.edu/TE/STEM.html**

Invent the Future

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

VirginiaTech
College of Liberal Arts and Human Sciences

STEM Education
300 War Memorial Hall (0313)
Blacksburg, Virginia 24061
540/231-8173 Fax: 540/231-9075
http://TechEd.vt.edu/TE/STEM.html

CORE COURSES: *INTEGRATIVE STEM EDUCATION*

EDCI 5774: STEM EDUCATION FOUNDATIONS

DESCRIPTION: An introduction to the educational, political, economic, and socio-cultural foundations of the STEM and STEM education disciplines. The course opens with an introduction to the nature of each of the STEM and STEM education disciplines, and follows with investigation of related political, economic, and socio-cultural foundations. This course provides students with a framework for constructing personal perspectives and philosophies of integrative STEM education.

EDCI 5774: STEM EDUCATION PEDAGOGY

DESCRIPTION: Through careful analysis, both individual and collaborative, of readings and case studies students in this course will explore the signature pedagogies unique to the fields of science, technology, engineering, and mathematics (STEM) education. In this exploration we will reveal both strengths and limitations associated with signature pedagogies, and gain insights into pedagogical strategies that can serve to enhance practices within our chosen STEM fields. The overarching goal is to better understand the distinct pedagogical approaches to teaching and learning that cross both professional and liberal education lines.

EDCI 5774: STEM EDUCATION TRENDS AND ISSUES

DESCRIPTION: An introduction to contemporary K-16 STEM education trends and issues, including both integrative and within-discipline trends/issues. Topics such as STEM literacy, integrative STEM teaching / learning, purposeful design and inquiry, legislative initiatives, and change theory are among those addressed in this course.

EDCI 5774: STEM EDUCATION RESEARCH

DESCRIPTION: Designed to survey the educational research practices of STEM disciplines, this course investigates the approaches used in studying the teaching/learning processes within the context of each discipline. Individually and collaboratively students will discover similarities, distinctions and overlaps among questions posed, research designs, and investigations into best practices with respect to improving teaching and learning among STEM disciplines.

EDCI 5784: STEM EDUCATION SEMINAR

DESCRIPTION: This course is designed as a general exploration into the issues surrounding the development of a STEM literate populace through education. This exploration will be facilitated by a blend of readings, discussions, and personal reflections. Course instruction will follow a seminar format appropriate for such a graduate level course.

EDCI 5964: FIELD STUDIES IN [STEM] EDUCATION (Variable Credit; P/F only)

DESCRIPTION: Applied study in one or more educational institutions. Research, evaluation, curricular, and instructional projects are examples of appropriate areas of study.

FOR MORE INFORMATION: Mark Sanders, 540/231-8173, msanders@vt.edu

Invent the Future

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

Appendix J
Insurance Certificates

Insurance Certificates

NORTHERN VIRGINIA COMMUNITY COLLEGE

CERTIFICATE OF COVERAGE

ISSUED TO:	All Interested Parties
INSURER:	COMMONWEALTH OF VIRGINIA
AUTHORIZATION:	*Commonwealth of Virginia Risk Management Plan* and §§ 2.2-1837 and 2.2-1840, *Code of Virginia*
COVERAGE PERIOD:	Continuous
PURPOSE:	To provide verification of general liability insurance for College academic activities.
COVERAGES:	Tort Liability, including Medical Malpractice and Automobile when applicable. Coverage also applies for liability and physical damage for rental/leased vehicles used on official state business.
LIMITS:	$2,000,000 – Tort claims against persons $100,000 – Tort claims against the Commonwealth $1,925,000 – Medical Incident per occurrence Actual Cash Value – Non-owned agency-authorized vehicles Statutory benefits for workers' compensation
ADMINISTRATOR:	Virginia Division of Risk Management P.O. Box 1879 Richmond, VA 23218-1879

This is for information only. It does not alter any provisions of the *Commonwealth of Virginia Risk Management Plan* nor the ***Code of Virginia***.

VERIFIED BY:

Alison W. Baker
Vice President, Finance & Administration

7/12/07
Date

4001 Wakefield Chapel Road • Annandale • Virginia 22003

INSURANCE BINDER

Date: June 30, 2007

This Binder is a temporary insurance contract, subject to the conditions shown below.

PRODUCER: VSBA Insurance Services
2320 Hunters Way
Charlottesville, VA 22911

INSURED: Arlington County Schools
1426 N. Quincy Street
Arlington, VA 22207

Companies Affording Coverage	
Company A	VSBA Property & Casualty Pool
Company B	VSBA Workers' Comp Group
Company C	AIG
Company D	CNA

Coverages

This is to certify that the policies of insurance listed below have been issued to the insured named above for the policy period indicated. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies. Limits show may have been reduced by paid claims.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE	POLICY EXPIRATION DATE	LIMITS	
A	*GENERAL LIABILITY – OCCURRENCE FORM*	VSBA 07-055-GL	07/01/2007	07/01/2008	General Aggregate	$ 2,000,000
					Premises Medical Payment	$ 10,000
					Personal & ADV Injury	$ 1,000,000
					Each Occurrence	$ 1,000,000
					Fire Damage (Any one fire)	$ 300,000
A	*AUTOMOBILE COVERAGE*	VSBA 07-055-AL/GLL/GK	07/01/2007	07/01/2008	Combined Single Limit	$ 1,000,000
					UM/UIM	$ 1,000,000
					Auto Med Pay	$ 5,000
					Physical Damage	$ N/A
					Comp Deductible	$ N/A
					Collision Deductible	$ N/A
	SCHOOL BOARD LEGAL – CLAIMS MADE FORM				Per Claim	$ 1,000,000
					Annual Aggregate	$ 1,000,000
					Deductible	$ 0
	CRIME				Blanket	$ 250,000
					Deductible	$ 250
	PROPERTY				$1,000 Deductible/Blanket Per Schedule on File	
A	*EXCESS LIABILITY*	VSBA 07-055-EX	07/01/2007	07/01/2008	Each Occurrence	$5,000,000
	WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				WC Statutory Limits	
					Employers Liability Each Accident	$ 1,000,000
					Employers Liability Disease – Policy Limit	$ 1,000,000
					Employers Liability Disease-Each Emp.	$ 1,000,000
	STUDENT ATHLETIC ACCIDENT & STUDENT ACCIDENT				Maximum Limit Per Accident	$
	BOILER & MACHINERY				Limit Per Breakdown	$10,000,000
					Deductible	$ 2,500

Description of Operations/Locations/Vehicles/Special Items:
Evidence Coverage

CERTIFICATE HOLDER:
Arlington County Schools
1426 N. Quincy Street
Arlington, VA 22207

CANCELLATION
Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 90 days written notice to the certificate holder named to the left, but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives.

AUTHORIZED REPRESENTATIVE

David B. Smith

DATE:

June 26, 12007