Virginia Board of Education Agenda Item

Agenda Item: D **Date:** March 22, 2012

Title	First Review of a Proposal to Establish a Governor's STEM Academy for Engineering, Marketing, and Information Technology Studies		
Presenter	R. Lisette Diehl, Technology Academy Coordinator, Landstown High School and Technology Academy, Virginia Beach City Public Schools Lolita B. Hall, Director, Office of Career and Technical Education Services		
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Purpose of Presentation:
Other initiative or requirement. Specify below:
First review and acceptance of the Proposal to Establish a Governor's STEM Academy for Engineering, Marketing, and Information Technology Studies at Landstown High School and Technology Academy, Virginia Beach City Public Schools

Previous Review or Action:
No previous review or action.

Action Requested:
Action will be requested at a future meeting. Specify anticipated date below:
Date: April 26, 2012
Action: Final review and approval

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

X	Goal 1: Expanded Opportunities to Learn
	Goal 2: Accountability of Student Learning
	Goal 3: Nurturing Young Learners
	Goal 4: Strong Literacy and Mathematics Skills
	Goal 5: Highly Qualified and Effective Teachers and Administrators
	Goal 6: Sound Policies for Student Success
	Goal 7: Safe and Secure Schools
	Other Priority or Initiative. Specify: Governor's STEM Academy

Background Information and Statutory Authority:
Goal 1: The Governor's STEM Academy is designed to expand opportunities for the general student population to acquire STEM literacy and other critical skills, knowledge, and credentials that will prepare them for high-demand, high-wage and high-skill careers.

Partnerships establishing academies must include at least one public school division, business and industry, and postsecondary education. On November 29, 2007, the Board of Education approved the criteria to establish a Governor's STEM Academy. Subsequently, on March 19, 2008, the Board

approved the standards for the Governor's Career and Technical Education Exemplary Standards Awards Program, which all Career and Technical Academies must implement.

As required by the Board of Education, the State Council of Higher Education for Virginia (SCHEV) has reviewed the attached proposal and recommends that the Board approve the proposal. Staff members of 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 in Attachment A. Attachments B and C are the reports from the reviews by SCHEV and the DOE. Attachment D is the complete proposal.

Currently, there are ten Governor's STEM Academies in Virginia. They are located in Arlington County, Chesterfield County, Halifax County, Hampton City, Loudoun County, Richmond City, Russell County, Stafford County, Suffolk City, and Carroll County.

Summary of Important Issues:
The proposed Governor's STEM Academy for Engineering, Marketing, and Information Technology Studies is conceptualized from a planning partnership that consists of Landstown High School and Technology Academy; Virginia Commonwealth University School of Engineering; Norfolk State University College of Science, Engineering and Technology; Tidewater Community College Division of Information Technology & Business; Old Dominion University STEM Marketing Education Program; ECPI University; Bryant & Stratton College; ITT Technical Institute; Johnson & Wales University; Armed Forces Communications & Electronics Association Hampton Roads Chapter; Ten80 Education, Inc.; Newfangled Solutions, LLC; Whitebox Learning; Virginia FIRST; STIHL Inc.; InMotion Hosting; Virginia Beach Schools Federal Credit Union; City of Virginia Beach Parks and Recreation; Junior Achievement of Greater Hampton Roads; Goodwill Industries; Norfolk Admirals Hockey; Beach Windows & Siding; Total Sportswear Solution, LLC; Food Lion; Chick-fil-a; Rite Aid; Cinema Café; and College House/Oarsmen; Jake's Smokehouse BBQ.

The proposed academy targets three pathways in three career clusters. The first pathway, Engineering and Technology is in the Science, Technology, Engineering, and Mathematics (STEM) Cluster. Students enrolled in the pathway will be actively involved with high-tech devices, engineering graphics, mathematical concepts, and scientific principles through engineering-design experiences. Students enrolled in this pathway will be introduced to the career choices in the engineering and technology areas and prepare for postsecondary education in one of the engineering and technology fields.

The second pathway, Professional Sales is in the Marketing Career Cluster. This pathway involves the transfer of goods and services in the economy, both to businesses and to individual consumers. Learners are prepared for careers in planning, managing and performing marketing services.

The third pathway, Web and Digital Communications is in the Information Technology Cluster. This pathway involves creating, designing and producing interactive multimedia products and services, including development of digitally-generated or computer-enhanced media used in business, training, entertainment, communications and marketing. Organizations of all types and sizes use digital media (the World Wide Web, CD-ROM, DVD) to communicate with existing and potential customers, to track transactions, and to collaborate with colleagues.

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

Timetable for Further Review/Action:
The proposed beginning date for the Governor's STEM Academy for Engineering, Marketing, and Information Technology Studies at Landstown High School and Technology Academy, Virginia Beach City Public Schools, is fall of 2012.

Superintendent's Recommendation:
The Superintendent of Public Instruction recommends that the Board of Education accept for first review the proposal to establish a Governor's STEM Academy for Engineering, Marketing, and Information Technology Studies at Landstown High School and Technology Academy, Virginia Beach City Public Schools.

Governor's STEM Academy for

Engineering, Marketing, and Information Technology Studies

Executive Summary

March 22, 2012

Partnership Members:	Landstown High School and Technology Academy; Virginia Commonwealth University School of Engineering; Norfolk State University College of Science, Engineering and Technology; Tidewater Community College Division of Information Technology & Business; Old Dominion University STEM Marketing Education Program; ECPI University; Bryant & Stratton College; ITT Technical Institute; Johnson & Wales University; Armed Forces Communications & Electronics Association Hampton Roads Chapter; Ten80 Education, Inc.; Newfangled Solutions, LLC; Whitebox Learning; Virginia FIRST; STIHL Inc.; InMotion Hosting; Virginia Beach Schools Federal Credit Union; City of Virginia Beach Parks and Recreation; Junior Achievement of Greater Hampton Roads; Goodwill Industries; Norfolk Admirals Hockey; Beach Windows & Siding; Total Sportswear Solution, LLC; Food Lion; Chick-fil-A; Rite Aid; Cinema Café; and College House/Oarsmen; Jake's Smokehouse BBQ.
Lead Entity:	Landstown High School and Technology Academy
Fiscal Agent:	Virginia Beach City Public Schools
Contact Person:	Mrs. R. Lisette Diehl Technology Academy Coordinator 757-648-5505 ldiehl@vbschools.com
Academy Location:	The Governor's STEM Academy for Engineering, Marketing, and Information Technology Studies Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, Virginia 23456
Number Students:	The Governor's STEM Academy will have the capacity to enroll 180 students, grades 912. During the initial school year (2012-2013) applications will be accepted for 40 students. Future plans to expand all three pathways are in development.
Career Pathways:	Engineering and Technology Professional Sales Web and Digital Communications
Academy Goals and Description:	The overall goals of the Governor's STEM Academy are to provide students with the 21st-century, STEM-enriched technological skills and knowledge necessary to succeed in postsecondary education and in the world of work through authentic, rigorous, project-based work while building partnerships with parents, community, and business leaders to meet these goals.

Specific Governor's STEM Academy objectives include:

- Provide students with guidance in designing their sequential four-year high school program and postsecondary plan to ensure they make informed decisions;
- Equip students with the knowledge and skills necessary to succeed in a STEM-related field of technology in a highly competitive 21st-century world;
- Develop critical-thinking, problem-solving, and decision-making skills required for the state-of-the-art 21st-century workplace;
- Prepare students for postsecondary education and/or the skills for a successful school-to-work transition;
- Establish partnerships with educational institutions, the business community, and the technology industry to establish internship and mentorship opportunities, as well as programs for expanded learning to extend, enrich, and refine student learning and link the resources of community, business, and industry to education;
- Deliver a series of sequential courses for students with multiple entry and exit points depending on their individual goals, abilities, and interests in order to ensure excellence and equity;
- Offer students opportunities to attend classes which reflect industry standards and allow them to earn industry certifications; and
- Encourage students to participate in competitions to enhance their skills and acknowledge their accomplishments.

Highlights of the Program:

As a result of participating in the Governor's STEM Academy in the pathways of Engineering and Technology, Professional Sales, and Web and Digital Communications, students will:

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

The State Council of Higher Education for Virginia

Review of Governor's Career and Technical Academy Proposal

Name of Lead Entity on Proposal: Landstown High School and Technology Academy

Date of Review: March 14, 2012

The State Council of Higher Education for Virginia recommends approval of the Governor's STEM Academy for Engineering, Marketing, and Information Technology Studies as a Governor's Career and Technical Academy.

Peter Blake
Director
State Council for Higher Education

3/15/12
Date

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

Final Review

Title of Proposal: Landstown High School and Technical Academy

Lead Entity for Proposal: Mrs. R. Lisette Diehl, Technology Academy Coordinator

Date of Review: March 5, 2012

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			

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			

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			
2. An emphasis on STEM career pathways;	X			
3. Individualized high school plans to ensure course selections that are aligned with students' transition and career goals after high school;	X			
4. Evidence that graduates will complete a college and work readiness curriculum, minimally at the level specified for Commonwealth Scholars Course of Study (State Scholars Core) with the possibility of pre-approved substitution of equivalent courses where there may be more relevant course selections for a particular career pathway;	X			
5. Evidence that graduates will qualify for the Technical and/or the Advanced Technical Diplomas; and	X			Application focuses on standard diploma and advanced studies diploma; however, the application will satisfy the requirements for the technical and/or advanced technical diplomas.
6. Incorporation of Virginia's Workplace Readiness Skills.	X			
Comments:				

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

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

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

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

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

	Documentation			Comments
	Full	Partial	None	
	X			.
Comments:				

E. Program and course descriptions

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

Criteria	Documentation			Comments
	Full	Partial	None	
Pathway #1				
a. Must include opportunities to earn industry credentials, postsecondary certificates, diplomas or associate degrees while in high school and pursue additional industry credentials and academic degrees at the associate, bachelor's and graduate levels. These pathways may be in the same or different career clusters.		X		
b. Must be in a field identified by a statewide authority or organization, such as the Virginia Economic Development Partnership or the Virginia Research and Technology Advisory Commission, as a strategic growth area for Virginia. Examples include biosciences, information technology, automotive technology and motor sports, as well as modeling and simulation and nanotechnology **or**	X			

Criteria	Documentation			Comments
	Full	Partial	None	
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				
a. Each career pathway must include opportunities to earn industry credentials, postsecondary certificates, diplomas or associate degrees while in high school and pursue additional industry credentials and academic degrees at the associate, bachelor's and graduate levels. These pathways may be in the same or different career clusters.	X			
b. Must be in a field identified by a statewide authority or organization, such as the Virginia Economic Development Partnership or the Virginia Research and Technology Advisory Commission, as a strategic growth area for Virginia. Examples include biosciences, information technology, automotive technology and motor sports, as well as modeling and simulation and nanotechnology, or	X			

Criteria	Documentation			Comments
	Full	Partial	None	
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			
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 6recognized 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.				
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.				
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:				

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 workforce and economic development entities should also be included if they are among the partners.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

B. Student recruitment, selection criteria, and admissions.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

C. Code of student conduct and attendance.

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

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

	Documentation			Comments
	Full	Partial	None	
	X			
Comments:				

E. Staff recruitment, selection, and assignment - The Governor's 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:				

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:				

Landstown High School and Technology Academy

Virginia Beach City Public Schools

Proposal to Establish a

Governor's STEM Academy

for

Engineering, Marketing, and

Information Technology Studies

Submitted

Spring 2012

Governor's STEM Academy for

Engineering, Marketing, and Information Technology Studies

Virginia Board of Education Proposal

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Introduction

Landstown High School currently houses the Virginia Beach City Public Schools' (VBCPS) Technology Academy. The Technology Academy at Landstown High School began operation, in conjunction with the opening of the new comprehensive high school, in the fall of 2001 as a school-within-a-school concept. For the past 10 years, the Technology Academy has provided an innovative learning environment designed for students to acquire skills needed in higher education, in the workplace, and in emerging technology fields. The program's focus has been to prepare students for advancement to institutions of higher education, advanced technology training, or entry-level jobs.

Due to the variety of interests of a diverse population within the school, as well as the varied employment opportunities available to the students, the program consists of three major areas of focus: Engineering and Technology, Marketing and Entrepreneurship, and Business and Information Technology. Within these expanded programs of study, referred to as strands, students are provided with choices to address their interests, abilities, and skills required for future employment. Students may pursue one, two, or three of these strands based on their needs/interests. In conjunction with each strand, students are enrolled in an honors-level English curriculum that infuses technical writing and technology. The courses offered within each of the strand areas are approved Career and Technical Education (CTE) courses and lead to various industry certifications and CTE completer status.

Approximately 400 students attend the Technology Academy each year. The graduating class is typically between 90 and 100 students per year. Traditionally this group of graduates is awarded well over one million dollars in scholarship monies to invest in furthering their education.

Rationale/Need

Since the inception of the existing program in 2001, the Technology Academy has evolved to meet the growing needs of students as mandated by industry and higher education. We intend to continue expansion of our program to address the demands of the 21st-century

student and the world that awaits them through the Governor's STEM Academy. The original rationale for the Technology Academy program in 2001 was based on the emphasis that the existing and future work force must be prepared to meet the challenges posed by technology (e.g., maximizing efficient use of technology and increasing global awareness). The same reasoning is apparent today with a greater emphasis on specialization and STEM-related fields. Although the statistics today vary greatly from those of a decade ago, the demand still exists. Names may have changed, but certainly not the compelling nature of the need.

According to the K–12 STEM Ed Report Card published by the Alliance for Science & Technology Research in America, the Commonwealth of Virginia will need to fill 404,000 STEM-related jobs by 2018. Virginia is one of four states that will lead the nation in the share of total jobs in the area of information technology and marketing career clusters as reported in the most recent Georgetown University Career Clusters forecast for 2008–2018 by the Center for Education and the Workforce. The introduction of specialized fields such as nanotechnology, advanced manufacturing, biotechnology, chemical engineering, geospatial technology, just to name a few, has broadened the scope of areas to address. With continuously evolving technical innovations and the global expansion of its many applications, students today need carefully designed programs of study that allow them to focus their intellectual development in particular fields.

Our Hampton Roads region currently identifies six major technology industry clusters, namely aerospace, bioscience, coastal energy, modeling and simulation, robotics and unmanned systems, and sensors. Technology developments will require that students not only be prepared to face current demands, but be able to quickly adapt to new ones. Critical thinking and problem-solving are necessary skills, as is flexibility. In previous years, it was thought that basic exposure to these fields in the high school setting would suffice. The past decade has shown that more is needed. In the April 2007 STEM Workforce Challenge report, prepared for the U.S. Department of Labor by Jobs for the Future, it was noted that "... our nation needs to increase the supply and quality of 'knowledge workers' whose specialized skills enable them to work productively within the STEM industries and occupations. It will not be

sufficient to target baccalaureate and advanced degree holders in STEM fields." Our challenge at the secondary level is to provide students with not only the current industry-related skills, but to equip them to adjust to the advancing requisites of today's world. According to Deloitte and the Manufacturing Institute's recent report on talent in the manufacturing industry, "Over the past five years, most manufacturers have redesigned and streamlined their production lines while implementing more process automation. In short, as the industry has changed, the nature of work that it requires is changing as well."

As an existing technology-based academy program, the challenge is designing not only classes, but sequences of studies, that will meet the future needs of our students in specific career pathways. They must have the problem-solving and communication skills necessary for the demands of the workplace now and in the immediate future. It is imperative that they have opportunities to participate in hands-on, project-based learning. Part of their assessment process must offer them the prospect of earning industry certification credentials. Students should be able to partake of on-the-job training and mentoring to provide them with real-life experiences. The curriculum that is delivered in the classroom must emphasize and address these emerging needs.

The classroom environment must also model the future workplace. Rigor and relevance are no longer words to define where instruction should go, but rather where it must be. More importantly, these terms do not just apply to those who are identified as academically-high achievers, but for all students. The teachers who provide this instruction must be qualified not only in content delivery, but in its application. Additionally, the staff must be knowledgeable on how to advise their students about career pathways and higher education offerings. The author of the article, "Advancing the STEM Workforce through STEM-centric Career Development," states, "Only through integration of academic and career and technical education are students best served." The current Technology Academy program offered at Landstown High School merges the best of both worlds, affording our students multiple opportunities to obtain the technical skills and knowledge base that will be required for the 21st-century learner/worker while pursuing his or her studies at the high school level. It is our

desire to expand and enhance our existing program with the implementation of a Governor's STEM Academy for Engineering, Marketing, and Information Technology studies creating plans of study for students to merge higher level mathematics and science courses with their chosen career pathway. Attaining this goal will enable us to recruit additional students pursuing specialized, advance-level studies while garnering further support of institutions of higher learning and business and industry.

Expansion Program to Establish Governor's STEM Academy

To reflect the diversity of our student population and our current program, a cluster from each area of concentration has been selected with a corresponding career pathway for our proposal. Our Governor's STEM Academy will be for Engineering, Marketing, and Information Technology. The skills and knowledge students will acquire will give them a competitive edge when pursuing advanced training and postsecondary education. The Engineering and Technology pathway will lead students to acquire industry certifications in areas that meet the high STEM demands of a local work force that supports the large military and industrial presence in our region. Students pursuing the information technology pathway of Web and digital communications will also benefit. The marketing pathway of professional sales will help prepare our students for projected state needs as well as the local needs in the tourism market. Additionally, the three pathways will incorporate the essential workplace readiness skills. Through project-based learning and work-related experiences, students will garner skills in research, communication, project management, collaboration, and leadership. Students in the Governor's STEM Academy may also participate in the co-curricular organizations of DECA, FBLA, and TSA and the wealth of established competitions and cooperative education opportunities. All of these real-life experiences and applications will further prepare students for their future. Enhanced co-curricular activities and units of study will be designed and utilized to maximize instruction and reinforce learning and applications of skills.

Current Program Overview

The Landstown High School Technology Academy is one of seven divisionwide specialized academic programs in the Virginia Beach Public City Schools. It is located within the comprehensive high school building of Landstown High School at 2001 Concert Drive in Virginia Beach, Virginia. It features a cutting-edge curriculum especially designed for students who demonstrate a profound interest in and talent for technology. Landstown High School is the only high school in the division to offer students an opportunity to focus their learning on the integration of business and information technology, engineering and technology, and marketing and entrepreneurship—critical areas of the emerging workplace. The primary emphasis of the Technology Academy is to provide students within our division the opportunity to enhance their core curriculum high school experience with specific coursework and skills in the areas of engineering and technology (STEM), marketing and entrepreneurship, and business and information technology. Guided by our division's Strategic Plan for Student Success, "Compass to 2015," the Technology Academy strives to provide students with a stellar educational background to prepare them for the 21st-century work force, advanced training, and higher education. As a result of these efforts, Landstown High School and Technology Academy was ranked as one of the top six percent of all high schools in the country by The Washington Post in 2010 and has been recently identified as a Microsoft IT Academy. During the 2009–2010 school year, the Engineering and Technology, Business and Information Technology, and Marketing and Entrepreneurship departments participated in the Governor's Exemplary Standard review. All three programs were awarded the status of "achieving," only points away from the highest level of "exemplary" status.

Landstown High School's general population is comprised of nearly 2,400 students. The Governor's STEM Academy will offer courses to approximately 400 students ranging from grades 9 to 12. Each grade level will consist of about 100 students. Currently 63 students are pursuing careers in Marketing and Entrepreneurship, 73 students in Information Technology, and 249 in Engineering and Technology. As a result of a thoughtful recruiting process, the program is well represented by students of all backgrounds, ethnicity, and both genders. Prior

to acceptance into the program, students select one or more concentrated career pathways from within the engineering and technology, marketing and entrepreneurship, and/or Business and Information Technology programs of study. The innovative learning environment of the Technology Academy provides students the added advantage of combining academic and technical training that will prepare them for a variety of post-graduation choices, such as higher education, advanced technical training, or the job market. The Academy utilizes Web-based and online learning, and our classrooms are equipped with advanced-level computers, software, and equipment. There is flexibility within the program for students to broaden their exposure to multiple career clusters. All Academy classes are **CTE-approved courses**. Several of the courses, such as Advanced Placement (AP) Computer Science, Physics of Technology, and Honors Academy English, carry core subject credits for mathematics, science, and English. **Verified credit** can be earned in any course where the student has successfully passed an industry certification examination. The program is preparing to expand its offerings in the social sciences discipline through AP Government classes. **Dual enrollment** courses were established with the inception of the Technology Academy for the English sequences in conjunction with Tidewater Community College. Additional specialty courses and industry certifications are accessible through the Advanced Technology Center. Landstown High School and Technology Academy currently offer a variety of 22 industry certifications at our site. Each of the program sequences are four-year programs complemented with accompanying **industry certifications** leading to specific career pathways. Overlapping within departmental offerings allows students to maximize their studies and skills while allowing for flexibility in options after graduation. The Technology Academy core courses offered within the approved program are exclusive to the Academy and are not available at any other high school setting within the division. Upon completion of two full-credit CTE courses, **CTE completer status** is attained. Students who successfully complete four or more of the approved Technology Academy courses are awarded the **Academy seal** upon graduation. Students satisfying all of the mathematics requirements for the Advanced Studies diploma (with a B average) in addition to earning an industry certification, acquiring a professional license in a CTE field from the Commonwealth of Virginia, or passing an examination approved by the Board of Education

from the Commonwealth that confers college-level credit in the area of technology or computer science will be awarded the **Seal of Advanced Mathematics and Technology**. Those students who complete a prescribed sequence of courses in a CTE concentration and meet all of the additional requirements will receive the **Career and Technical Education Seal**. The majority of students in the program are seeking Advanced Studies diplomas. While attending the program, students may earn credit towards an Associate's Degree in Technical Studies from Tidewater Community College. Students may participate in the state **Early College Scholars Program** by earning 15 or more college credits with successful completion of advanced placement courses and/or dual enrollment. Additionally, as many as 12 college credit hours can be earned for successful completion of two years of dual enrollment English from Tidewater Community College.

Students attending the Technology Academy select a minimum of one Academy course to pursue each year on campus. Based on availability, students may take as many Academy classes each year as their schedule will permit. Academy classes are elective classes with complementing core classes including a four-year sequence of honors-level English classes. The program is divided into three programs of study: Engineering and Technology, Business and Information Technology, and Marketing and Entrepreneurship. Each of these programs of study offers detailed sequences of courses to complete for industry certification and to prepare the student for specific STEM career pathways. They are aligned so that students may earn specific industry certifications, Career and Technical Education completer status, and meet the requirements for a specific diploma.

Landstown High School and Technology Academy is well into its second year as a National Demonstration School for the internationally acclaimed AVID (Advancement Via Individual Determination) Program. We are one of only two such sites on the East Coast. All courses taught on our campus infuse WICR (writing, inquiry, collaboration, and reading) strategies. The Academy program is strongly focused on project-based learning. In keeping with our division strategic plan for student success, "Compass to 2015", teachers engage students in meaningful, authentic, and rigorous work through the use of innovative

instructional practices and supportive technologies that will motivate the students to be self-directed and inquisitive learners. Performance-based assessments are utilized to measure students' success in meeting 21st-century skills. Augmented curricula are integrated into classroom instruction to address 21st-century skills, as well. Indicators such as follow-up data from employers and colleges are collected to assess graduates' college and workplace readiness.

Students enrolled in any Engineering and Technology, Marketing and Entrepreneurship, or Business and Information Technology class are eligible to participate in the corresponding student organization. **Engineering and Technology students are affiliated with the Technology Student Association (TSA).** TSA is a national student organization devoted to teaching technology education to young people promoting personal growth, leadership, and opportunities in technology, innovation, design, and engineering. Its mission is to inspire students to prepare for careers in a technology-driven world. Members apply and integrate science, technology, engineering, and mathematics concepts through class activities, concept events, and related programs. The teachers promote technology literacy, leadership, and problem solving to the students.

Marketing and Entrepreneurship students are associated with the Distributive Education Clubs of America (DECA), an international association of marketing students preparing emerging leaders and entrepreneurs in marketing, finance, hospitality, and management. The mission of DECA is to enhance the co-curricular education of students with interests in marketing, management, and entrepreneurship. DECA helps students develop skills and competence for marketing careers, build self-esteem, experience leadership, and participate in community service activities. DECA's objective is to support the development of marketing and management skills in career areas such as hospitality, finance, sales and service, business administration, and entrepreneurship. Programs and activities are tailored to the specific career interests of students and include technical skills, basic scholastic and communication skills, human relations and employability skills, with a strong emphasis on economics and free enterprise.

The corresponding student organization for Business and Information Technology students is the Future Business Leaders of America (FBLA). Future Business Leaders of America-Phi Beta Lambda is an educational association of student members preparing for careers as entrepreneurs in the business world. FBLA-PBL provides innovative leadership development programs and activities to blend business and education together.

All students enrolled in the Academy program and meeting the eligibility requirements may participate in the National Technical Honor Society. This organization is devoted to creating and fostering relationships among industry, business, and educational communities. Active students may compete for scholarships and additional career opportunities. Using Pipeline NC, members have access to an innovative Web-based system that allows students to collaborate with businesses and educators.

Select students within the Engineering strand participate in the Opportunity Inc. STEM 101 program. Upon completion, these students receive three hours college credit from Norfolk State University. The course focus is innovative technology related to science and mathematics and workplace readiness skills.

Program Goals and Objectives

The overall goals of the Landstown Technology Academy and proposed Governor's STEM Academy are to provide students with the 21st-century technological skills and knowledge necessary to succeed in postsecondary education and in the world of work. Specific Academy objectives include the following:

- Provide students with guidance in designing their sequential, four-year high school program and postsecondary plan to ensure they make informed decisions.
- Provide students with the knowledge and skills necessary to succeed in a STEM-related field of technology in a highly competitive 21st-century world.
- Develop critical-thinking, problem-solving, and decision-making skills required for the 21st-century workplace.

- Prepare students for postsecondary education and/or the skills for a successful school-to-work transition.
- Build partnerships with educational institutions, the business community, and the technology industry to establish internship and mentorship opportunities, as well as programs for expanded learning to extend, enrich, and refine student learning and link the resources of community, business, and industry to education.
- Provide a series of sequential courses for students with multiple entry and exit points depending on their individual goals, abilities, and interests in order to ensure excellence and equity.
- Provide students with opportunities to attend classes that reflect industry standards and allow them to earn industry certifications.
- Encourage students to participate in competitions to enhance their skills and acknowledge their accomplishments.

Compass to 2015

In addition to goals established for the Technology Academy, our division developed a strategic plan for student success, "Compass to 2015." This plan specifically addresses goals for preparing our students for the 21st-century. The objectives provide key strategies and measures for meaningful, authentic, rigorous work, and balanced assessment. It also strives to close achievement gaps, build partnerships with parents, community, and business leaders, and develop staff to meet these goals.

The expected student outcomes outlined in "Compass to 2015" complement those of the existing Technology Academy program and proposed Governor's STEM Academy for Engineering, Marketing, and Information Technology. The Academy performs continuous self-evaluations to assess performance and goal attainment for the strategic plan goals.

COMPASS TO 2015 VBCPS Division Plan for Student Success

VBCPS Outcomes for Student Success
Our primary focus is on teaching and assessing those skills our students need to thrive as 21st-century learners, workers and citizens. All VBCPS students will be:

- Academically proficient
- Effective communicators and collaborators
- Globally aware, independent, responsible learners and citizens
- Critical and creative thinkers, innovators and problem solvers

Strategic Goal
Recognizing that the long range goal of the VBCPS is the successful preparation and graduation of every student, the near term goal is that by 2015, 95 percent or more of VBCPS students will graduate having mastered the skills that they need to succeed as 21st century learners, workers and citizens.

Strategic Objective 1	Strategic Objective 2	Strategic Objective 3
All teachers will engage every student in meaningful, authentic and rigorous work through the use of innovative instructional practices and supportive technologies that will motivate students to be self-directed and inquisitive learners.	VBCPS will develop and implement a balanced assessment system that accurately reflects student demonstration and mastery of VBCPS outcomes for student success.	Each school will improve achievement for all students while closing achievement gaps for identified student groups, with particular focus on African American males.
• Identify the 21st-century skills for VBCPS. • Integrate 21st-century skills into K-12 curriculum and instruction. • Define, develop, and promote effective teaching practices that maximize rigor and meaningful engagement for all students. • Integrate supportive technologies into the instructional program delivery.	• Develop and/or adopt varied assessments, including performance-based assessments, to create a balanced assessment system that measures VBCPS outcomes for student success. • Provide training for teachers and administrators on developing, using, scoring, and interpreting varied types of assessments to create a balanced assessment system. • Monitor and evaluate VBCPS assessments to ensure quality and fidelity. • Develop a process to monitor and report student performance on VBCPS divisionwide assessments.	• Design and implement a transition process to ensure that students are prepared for the next school level. • Develop and implement the K-12 Literacy Initiative, with an emphasis on monitoring K-2 reading achievement. • Develop and implement a Response to Intervention (RtI) model. • Review and revise the school improvement process so it aligns with the strategic plan. • Continue to monitor and engage in efforts directed at closing the achievement gap with specific focus on the African American male identified from the 2007 Program of Work.

Strategic Objective 4	Strategic Objective 5
VBCPS will create opportunities for parents, community and business leaders to fulfill their essential roles as actively engaged partners in supporting student achievement and outcomes for student success.	VBCPS will be accountable for developing essential leader, teacher and staff competencies and optimizing all resources to achieve the school division's strategic goal and outcomes for student success.
• Promote mentorship programs throughout the school division. • Work to bridge the "digital divide" by increasing student access to technology and Internet among the division's families. • Strengthen collaboration with city agencies, civic groups, community and faith-based organizations that have similar educational missions. • Promote enhanced understanding and support of the Compass to 2015 Strategic Plan and the division's identified 21st-century skills through various communication strategies. • Develop avenues for parental and community outreach that are designed to support the outcomes for student success, with particular emphasis on underserved families.	• Develop a divisionwide master framework for professional development and training that optimizes resources and addresses the essential competencies needed by teachers, administrators, professional/supervisory and classified staff. • Provide opportunities for school leaders and teachers to observe successful practices that maximize high levels of student engagement in challenging work. • Develop and provide equitable access to quality learning tools and technologies. • Revise and align evaluation instruments. • Develop a model for teacher, administrator, and staff training/professional development and capacity building to include strategies for the integration of 21st-century skills. • Ensure the development, use, and support of Professional Learning Communities focused on improving academic achievement for all students by enhancing teachers' and administrators' expertise.

Compass to 2015

Landstown High School Technology Academy

Self-Assessment

Strategic Objective 1

All teachers will engage every student in meaningful, authentic, and rigorous work through the use of innovative instructional practices and supportive technologies that strive to motivate students to be self-directed and inquisitive learners.

Business and Information Technology

- The Business and Information Technology Department uses state-of-the-art software with hands-on instruction.
- AVID strategies are incorporated in all Business and Information Technology classes.
- The Oracle Academy and Web Development classes use online classrooms so students can access curriculum and practice environments from any computer with an Internet connection (home, school, portable media players and smart phones).
- With the exception of keyboarding, all Business and Information Technology courses offer industry certification exams to qualified students.
- Students are provided with self-test software to individualize preparation for certification exams.
- The Virtual Enterprise (VE) method of instruction is used in our management course to provide students with an opportunity to write business plans, and open and operate a simulated, virtual business that will interact with other VE firms throughout the world.
- Teachers incorporate the Virginia Workplace Readiness (WRS) skills into daily lessons to prepare students for the certification exam.
- Microsoft IT Academy online, self-directed curriculum, Certiport and Adobe self-test software are utilized to prepare students for industry certification.

Marketing and Entrepreneurship

- Global Marketing and Commerce students create an Export Plan.
- Advanced Fashion Marketing and Fashion Marketing students produce a Fashion show.
- Students conduct market research for local businesses.
- Advanced Fashion Marketing students complete a buying project that encompasses marketing research, buying, pricing, and selling.
- Internet Marketing students prepare an electronic portfolio.
- Marketing students learn about financial literacy on "Financial Fridays."
- Advanced Entrepreneurship students prepare business plans for both a franchise business and an independent business.
- SER Marketing students plan events such as the LHS Leadership Conference and the Powder Puff football game.
- All marketing students use computer software, i.e., PowerPoint, Publisher, Excel, Word, and Dreamweaver.
- Internet Marketing and Web Development classes work with local businesses to complete a project in Web site design.
- Students gain real-world experience in customer service, visual merchandising, selling, and buying via projects through the school-based enterprise, Eagle's Landing.

Engineering and Technology

- The curriculum is aligned with the National Standards for Technology.
- All courses use the Virginia Department of Education Competency List.
- Each course is aligned through the Correlation of CTE competencies to the Standards of Learning.
- Each teacher utilizes a classroom SharePoint and teacher Web sites for instructional purposes.
- Introduction to Engineering classes utilize online software to experience modeling and simulation.

- Engineering and Design students experience CNC manufacturing by constructing a CNC mill.
- Engineering and Design students design and construct solar panels to study photovoltaic energy.
- Select students participate in the FIRST FTC competition.
- Through engineering and programming, students define a stated problem, then research and design a solution. Once the machine is built, programming is applied to the machine and troubleshooting can begin, continuing until the desired outcome is achieved.

Strategic Objective 2

VBCPS will develop and implement a balanced assessment system that accurately reflects student demonstration and mastery of VBCPS outcomes for student success.

Business and Information Technology

- The Business and Information Technology Department regularly uses authentic assessments and production-based problems to evaluate student mastery.
- SAM software is used in the CIS classes to demonstrate mastery of competency through interactive responses to questions and student-produced projects.
- Twelve different certifications are offered through courses in the Business and Information Technology Department.
- Students engage in local, regional, state, and national competitions, demonstrating mastery of competencies in Business and Information Technology.

Marketing and Entrepreneurship

- Our curriculum is competency-based and divided into career clusters.
- We provide students with the opportunity to receive industry certifications in customer service, sales, and WRS.
- Students participate in DECA competitive events at the district, state, national, and international levels.

Engineering and Technology

- Teachers provide SchoolNet access for parents to access information on student progress.
- Students have the opportunity to obtain verified credit by taking the NOCTI, AutoCAD and Adobe certifications and Virginia Workplace Readiness Skills Assessment for all career clusters.
- In CAD classes, students are presented with the concepts and commands needed to master the unit. Many students focus on the basic examples from the text, but some students take it further, designing their own solutions that show deep understanding of commands, theories, and drafting principles.

Strategic Objective 3

Each school will improve performance for all students while closing achievement gaps for identified student groups, with particular focus on African American males.

Business and Information Technology

- The Business and Information Technology Department offers an open lab every Tuesday and Thursday for all business students. This is a time for students to receive extra help or just have access to a computer.
- Each teacher has developed Response-to-Student-Needs (RTSN) plans for students not reaching their full potential.
- We encourage all students to participate in our nationally-recognized award-winning co-curricular organization, the Future Business Leaders of America.

Marketing and Entrepreneurship

- We provide the annual leadership conference for all LHS student leaders.
- We hold detention for incomplete assignments until completed.
- Each teacher has developed Response-to-Student-Needs (RTSN) plans for students not reaching their full potential.
- We enforce study time/assignment completion during supervised study blocks.

Engineering and Technology

- We provide Advancement Via Individual Determination (AVID) Mentorships.

- Each teacher has developed Response-to-Student-Needs (RTSN) plans for students not reaching their full potential.
- We provide tracking of Industry Certification data.
- The engineering department offers after-school tech clubs as well as tutoring and extra lab time after school. We stay tuned in to students with particular needs (difficulties at home, in another class, and/or with his/ her peers... .) and develop a good rapport, listen and include proper documentation.

Strategic Objective 4

VBCPS will create opportunities for parents, community, and business leaders to fulfill their essential roles as actively engaged partners in supporting student achievement and outcomes for student success.

Business and Information Technology

- Parents and partners participate in all Academy Night programs, Eagle Expo and Fresh Start, our ninth grade orientation program.
- Local business, community and educational leaders serve as guest speakers.
- Field trips to local colleges and businesses are hosted by partners for the students.
- "Eagle Talk" Series provides monthly guest speakers for Technology Academy students.
- Teachers utilize group e-mails for each class to keep parents informed of class activities.
- Teachers encourage parents and students to use Parent Portal to monitor student progress.
- Teachers promote parental involvement in our co-curricular organization, the Future Business Leaders of America.
- Co-op students work part-time at local businesses to earn high school credit.
- Virtual Enterprise classes partner with local businesses.
- Web Development and Administration classes complete a Web-design project for local businesses.

Marketing and Entrepreneurship

- Students work part-time at many local businesses for high school credit.
- Business leaders serve as project mentors.
- Parental involvement is fostered in DECA activities.
- A parent survey is conducted to assess the program.
- Outside points are assigned to promote volunteerism in the school and community.
- Parent meetings are held prior to field study trips and conferences.

Engineering and Technology

- Parents and partners serve as TSA competition judges.
- Classroom partners are recruited to support mentorship opportunities for students.
- Various partners support the STEM 101 initiative.
- Mentorships with FIRST FTC competition are provided by partners.
- "Eagle Talk" Speaker Series participants are recruited from various businesses and industries related to the engineering pathways.
- We have great participation from parents and local businesses for student school-to-work programs. This offers the student real-life experiences and provides real-world examples of class topics.

Strategic Objective 5

VBCPS will be accountable for developing essential leader, teacher and staff competencies and for optimizing all resources to achieve the school division's strategic goal and outcomes for student success.

Business and Information Technology

- We provide Office 2007 and 2010, School Net, and Certiport Test Prep training to the LHS staff.
- We participate in AVID training, complete Exemplary Standards review, and serve on state curriculum writing teams.
- We participate in Professional Learning Communities and Learning Walks as well as curriculum committees to ensure that our curriculum is always current.

Marketing and Entrepreneurship

- We are Virginia Association of Marketing Educators (VAME) members and participate in the VA DECA State Leadership Conference.
- Teachers attend conferences conducting workshops and serving in leadership roles.
- We complete Exemplary Standards review.
- All teachers are certified in alignment with the industry certifications granted by the department.
- We participate in Professional Learning Communities, conduct peer observations, and practice team teaching.

Engineering and Technology

- TSA, VBCPS STEM Robotics Competition, and the Great Computer Challenge provide leadership and collaborative skills for students.
- The FIRST FTC Competition teaches professionalism to students.
- Teachers participate in curriculum roundtable meetings and Professional Learning Communities.
- We complete Exemplary Standards review, present at regional and state professional conferences, and attend the VTEEA and MODSIM Conference annually.
- Select teachers serve on the Sustainability Committee.

Programs of Study

Students explore the applications of technology through advanced technology coursework and project-based learning. Academy coursework extends beyond the technology-oriented courses offered in regular comprehensive high schools. The Governor's STEM Academy curriculum is organized into three programs of study: Business and Information Technology, Engineering and Technology, and Marketing and Entrepreneurship. Students are required to complete four full electives within a strand sequence to complete their Academy requirements. Each strand sequence prepares the student for particular career pathways (see strand sequence chart). The majority of these pathways are in STEM-related fields for which there is a current identified or predicted need as listed in the proposal need/rationale.

Virginia's Workplace Readiness Skills are deeply embedded and integrated in all courses in conjunction with business partnerships. The following courses will serve as the Governor's STEM Academy curriculum with additional courses added as the Academy grows. Additional related technology courses are offered at the Advanced Technology Center to complement the program.

Titles of exclusive academy courses, listed by program of study, are as follows:

Business and Information Technology

- Computer Information Systems/MCAS
- Advanced Computer Information Systems/Advanced MCAS
- Information Technology Fundamentals
- Database Management and Administration—Oracle
- Advanced Database Management and Administration—PL/SQL
- Web-based Development and Administration
- Business Management/Virtual Enterprise
- AP Computer Science—JAVA

Engineering and Technology

- Bioengineering
- Technical Drawing and Design
- Architectural Drawing
- Engineering Drawing and Design
- Introduction to Engineering Design
- Engineering Design and Development
- Digital Visualization
- Electricity/Electronics I
- Electricity/Electronics II
- Technical Information Technology Support (Senior Design)
- Robotics
- Geospatial Technology

- Digital Visualization
- Materials Technology
- Physics of Technology

Marketing and Entrepreneurship

- Entrepreneurship Education
- Advanced Entrepreneurship
- Fashion Marketing
- Advanced Fashion Marketing
- Global Marketing and Commerce
- Advanced Global Marketing and Commerce
- Internet Marketing
- Sports, Entertainment, and Recreation Marketing
- Sports, Entertainment, and Recreation Marketing—CO-OP
- Advanced Sports, Entertainment, and Recreation Marketing
- Advanced Sports, Entertainment, and Recreation Marketing—CO-OP
- Travel and Tourism
- Travel and Tourism—CO-OP
- Advanced Travel and Tourism
- Advanced Travel and Tourism—CO-OP

Corresponding Course Offered at the Advanced Technology Center

Business and Information Technology

- Software and Game Development (AT6641)
- Advanced Software and Game Development (AT6642)
- A+ Computer Repair (AT8685)
- Computer Network Administrator I (AT6655)
- Computer Network Administrator II (AT6656)
- CISCO Networking Academy I (AT6657)
- CISCO Networking Academy II (AT6658)

- Digital Design I (AT8570)
- Digital Design II (AT8571)
- Internet Web Professional (AT6630)
- Advanced Internet Web Professional (AT6631)
- Telecommunications I (AT8680)
- Telecommunications II (AT8681)

Engineering and Technology

- Architectural Design (AT8531)
- Computer Aided Drafting and Design I (AT8530)
- Computer Aided Drafting and Design II (AT8531)
- Engineering Technology I (AT8436)
- Engineering Technology II (AT8437)
- Modeling and Simulation (AT8462)
- Marine Engineering and Design (AT8532)

Marketing and Entrepreneurship

- Marketing Management (ME8223)
- Marketing Management CO-OP (ME8222)
- Advanced Marketing Management (ME8243)
- Advanced Marketing Management CO-OP (ME8242)
- Hotel Operations (ME8161)
- Hotel Operations CO-OP (ME8160)
- Hotel Management (ME8165)
- Hotel Management CO-OP (ME8164)

Business and Information Technology

Business and Information Technology focuses on three career clusters. The primary cluster is Information Technology, and the others are Business Management & Administration and Finance. Courses are aligned beginning in the freshman year to direct learning toward a particular career pathway. Students have multiple opportunities to participate in cooperative

education through business partnerships, as well as earn the associated industry certifications related to their studies. A culminating nine-week collaborative project is incorporated into the Web-Development and Administration and Internet Marketing courses. The local participating business partners include Beach Window and Siding, various restaurants, and the Virginia Beach Schools Federal Credit Union. Additionally, Business and Information Technology students collaborate with engineering students to compete in the Great Computer Challenge annually.

Another boost to Business and Information Technology is the inclusion of the Microsoft IT Academy. It provides students with access to the latest Microsoft software and Microsoft course materials, E-Learning, and Microsoft Certification exams. In today's competitive job market, having skills on the latest technology can give students an edge when they apply for their first job. Whether they are planning for a career in technology, science, or business, the Microsoft IT Academy Program gives students hands-on experience with the latest Microsoft technology to help them succeed.

The program also provides internationally-recognized certification and gives Landstown High School and Technology Academy an opportunity to become a test center to provide on-site Microsoft Certification exams.

Another benefit is individualized online training for LHS students who, because of scheduling, may be unable to enroll in our courses. Microsoft IT Academy is also open to the LHS faculty for professional and personal development, as well as the LHS community.

Web and Digital Communications Pathway

For the purposes of this proposal, the career pathway identified within the Information Technology cluster is Web and Digital Communications. As a growing field nationally and locally, it is imperative that students receive specific training and skills in Web Design and Computer Information skills and programming languages. Courses taught in this sequence within the Governor's STEM Academy will include Information Technology Fundamentals, Design, Multimedia, and Web Technologies, Database Design and Management (Oracle) and Advanced Database Design and Management with PL/SQL(Oracle). Computer Information

Systems, Advanced Computer Information Systems, and Web-based Development and Administration will be the recommended corresponding supplementary electives. Students will be strongly encouraged to take higher level mathematics courses including AP Computer Science. A host of additional electives will be offered both on our campus and through the Advanced Technology Center to complement these courses. Students will be able to participate in the DECA student co-curricular organization, obtain industry certifications, and benefit from cooperative education experiences.

Web and Digital Communications Pathway Course Descriptions

Information Technology Fundamentals (ITF)

Information Technology Fundamentals (ITF) introduces the essential skills needed for student success in today's workplace. While ITF is a survey course to help students gain exposure to emerging technologies, it provides an opportunity for students to refine their interests for future studies. The goal of the ITF course is to provide a strong base of knowledge for students related to information basics, Internet fundamentals, network systems, computer maintenance/upgrading/trouble-shooting, computer applications, graphics, Web page design and interactive media.

Throughout the course, students will be eligible to participate in the Internet and Computing Core Certification (IC^3) exam. The Global Standard 3 is an internationally recognized standard for digital literacy and reflects the most relevant skills for school and business today. Students passing the certification exam will be eligible for a verified elective credit and possible exemption from the final exam.

Design Multimedia and Web Technologies

This business course is designed for secondary school students to develop proficiency in using desktop publishing software such as Microsoft Advanced Word and Publisher to create a variety of printed and electronic publications. Students incorporate journalistic principles in design and layout of publications, multimedia presentations, and Web pages. Students develop an electronic portfolio to showcase their design skills. Students also learn the importance of

workplace readiness skills, an overview of all aspects of industry, and computer basics and Internet safety. In addition, students will design, produce, and edit a PSA commercial to work with Landstown's Eagle AM TV.

Students who are Business Completers will also have the opportunity to sit for Virginia's Workplace Readiness Skills certification which can be used for a student-selected verified credit.

Database Design and Management (Oracle)

Oracle includes database design and programming. Students study database fundamentals to include database development, modeling, design, and normalization. Students analyze business requirements and create entity relationship diagrams and data models, all while building collaboration and problem-solving skills. Later, students learn Structure Query Language (SQL) using the Oracle Application Express tool to manage and control access to data. Upon satisfactory completion of this class, the student will be able to:

- Explain the development of relational databases
- Design and model a database
- Normalize data
- Write select statements using SQL
- Write DDL (Data Definition Language), DCL (Data Control Language), and TCL (Transaction Control Language) statements
- Keep up-to-date with changing technology issues
- Prepare for the certification exam

Students have the opportunity to take the first step toward Oracle Certified Associate certification with successful completion of the Oracle Introduction to SQL. The cooperative education component is available in conjunction with this class.

Advanced Database Design and Management (PL/SQL)

Technology Academy Programming with PL/SQL introduces students to the PL/SQL programming language. PL/SQL is the procedural language extension to SQL and is Oracle

Corporation's standard data access language for relational databases. PL/SQL is an advanced fourth generation programming language that extends the capabilities of SQL. It allows basic program logic and control flow to be combined with SQL statements. Students study programming constructs to include variables, constraints, conditional statements, loops, functions, procedures, and packages. They learn to handle errors through exception statements, as well as develop triggers. Upon satisfactory completion of this class, the student will be able to write code to include:

- Basic PL/SQL block structures
- Basic and Advanced Logical (IF/Loop) statements
- Variables
- Cursors
- Exception Handling
- Procedures
- Functions
- Packages
- Triggers
- Oracle Supplied Packages
- Dynamic SQL
- Advanced Data Types
- Keep up-to-date with changing technology issues
- Prepare for the certification exam

Students have the opportunity to take the Oracle Introduction to PL/SQL certification exam. Students who have successfully completed both the Oracle Introduction to SQL and the Oracle Introduction to PL/SQL exams will become an Oracle Certified Associate. Students may participate in the cooperative education component while enrolled in this class.

Certification Path in the Oracle Internet Academy Courses:

The Oracle Certification Program begins with the Associate level, i.e., Oracle 9i Developer Associate. At this apprentice skill level, Oracle Certified Associates have a foundation of

knowledge that allows them to act as junior team members working with database administrators or application developers. Earning the Oracle Certified Associate credential as a beginning IT professional gives the student recognition for their foundation of knowledge using Oracle technologies. This distinction differentiates them from those without any credentials and can help them build their career by obtaining access to entry-level opportunities.

To become an Oracle Certified Associate, the student must pass the exams required for the Oracle Certified Associate level of their selected job role. Typically, two exams are required. The first one can be taken via the Internet, while subsequent exams must be taken in a proctored environment. Introduction to Oracle9i: SQL (#1Z0-007), the first exam is offered with this course. The second exam (1Z0-147 Oracle: Program with PL/SQL) is rendered with the Academy Programming with PL/SQL course.

Landstown provides qualified students with an online Self-Test Software account. This account serves as their practice environment for the certification exam. Qualified students will need access to the Internet and a valid e-mail address to create this account. The account is valid for ninety days and provides students with a variety of practice test questions.

To qualify for the Self-Test Software, a student must pass all online curriculum exams with a 60 or higher and currently be passing the class. There are four online exams (first semester midterm and final, plus second semester midterm and final). Students will have three opportunities to pass these tests; however, only the first score will be recorded as their grade.

When a student has successfully completed all four curriculum exams, individual testing time will be scheduled with the instructor for the industry certifications.

Computer Information Systems (CIS)

Students develop proficiencies in Microsoft Office 2010 Word, Excel, PowerPoint, and Access. Students prepare to sit for the Microsoft Office Specialist (MOS) industry certification. In the process of preparing for the industry certifications, students use various software programs and resources to apply problem-solving skills. Upon successful completion of practice exams,

students are eligible to sit for the Microsoft Office Specialist industry certifications. Additionally, the cooperative education method is utilized in this class.

COURSE OBJECTIVES FOR CIS

- Explore Computer Concepts
- Explore Ethical Issues Related to Computers and Computer Systems
- Manage Computer Systems
- Produce Word Processing Documents
- Develop Electronic Spreadsheets
- Develop and Manage Databases
- Develop Multimedia Presentations
- Communicate Through Technology
- Develop Employability Skills
- Prepare for the Microsoft® Certified Applications Specialists Certification Exams

Advanced Computer Information Systems (ADV CIS)

This course expands upon the prerequisite CIS course. The software programs used in this course are Microsoft Office 2010® and Adobe® CS5. Students learn to create Web pages using Dreamweaver including graphics and animation using Flash and Fireworks. Students continue to prepare for the Microsoft Office Specialist (MOS 10) industry certifications and the Adobe® CS4 Dreamweaver certification. In the process of preparing for the industry certifications, students use various software programs and resources to apply problem-solving skills. The cooperative education component is incorporated in this class.

COURSE OBJECTIVES FOR ADV CIS

- Explore Computer Concepts
- Explore Ethical Issues Related to Computers and Computer Systems
- Manage Computer Systems
- Develop Electronic Spreadsheets

- Develop and Manage Databases
- Develop Multimedia Presentations
- Communicate Through Technology
- Create Web Pages using HTML and CSS
- Create Graphics
- Create Web Animation
- Develop Employability Skills
- Prepare for the Microsoft® Office Specialists Certification Exams

Web Design and Administration

Web Design and Administration is based on the Adobe Digital Design: Foundations of Web Design curriculum. This course teaches the essential, hands-on skills and knowledge that Internet professionals are expected to understand.

Digital Design: Foundations of Web Design is a project-based curriculum that teaches digital communication skills in the context of the professional Web design and development process, using Adobe Web tools. Digital Design develops four key skill areas:

- Project management and collaboration
- Design
- Research and communication
- Professional Web-authoring tools

Students develop these key skills in a spiral, i.e., each project adds more challenging skills onto the foundation proficiencies. Digital Design addresses each of these areas, using a project-based approach. Each project has phases that follow a design and development process, from project planning to evaluation and launch. To simulate a professional work environment, students gradually migrate their design work from an individual process to a group process. Design and technical work by their very natures are iterative, so the projects contain activities

that require students to evaluate, then redesign and rework their communications. Specific attention has been paid to developing concepts and principles for thorough, effective design.

Throughout the course, students will be eligible to participate in the Adobe Certified Associate (ACA) program. ACA demonstrates basic, entry-level skills with Adobe digital media software. Students will prepare for the Web Communication with Adobe Dreamweaver and Rich Media Communication with Adobe Flash. Students passing a certification exam will be eligible for a verified elective credit and possible exemption from the final exam.

Advanced Placement Computer Science

Advanced Placement Computer Science is a Java-based, introductory, college-level course that parallels the shift by colleges and industry toward a more object-oriented style of programming. The course meets the requirements set forth in the syllabus of the College Board. Students enrolled in this course have the opportunity to sit for the AP Computer Science test. Success on this test can earn students college credits at many universities. Because the development of computer programs to solve problems is a skill fundamental to the study of computer science, a large part of the course is built around the construction of computer programs or parts of programs that correctly solve a given problem. The course also emphasizes the design issues that make programs understandable, adaptable, and when appropriate, reusable. At the same time, the development of useful computer programs and classes is used as a context for introducing other important concepts in computer science, including the development and analysis of algorithms, the development and use of fundamental data structures, and the study of standard algorithms and typical applications. In addition, an understanding of the basic hardware and software components of computer systems and the responsible use of these systems are integral parts of the course. Topics include computer systems, object-oriented program design concepts and implementation, classes, strings, arrays, recursion, data structures, and analysis of algorithms. Standard Java classes and methods will be used. Students will develop Java applications and applets using the current Sun Microsystems Java Development Kit and an Integrated Development Environment (IDE) such as JCreator or BlueJ.

The course is taught from an objects first perspective. Students are introduced to the concepts of interacting objects early, and then the traditional programming structures and data types are introduced. Topics are introduced by lecture and then reinforced through various programming projects. Students are encouraged to explore solutions using the Java resources available, including the Java API (Application Program Interface), commonly referred to as the Java Docs.

Additional information for Business and Information Technology courses

Students who take and pass a minimum of one of the following certification exams: IC3, any exam included in Microsoft Office Specialists, Introduction to SQL, and Introduction to PL/SQL, or score a 3 or better on the AP Computer Science exam and meet all additional requirements for an advanced diploma will be awarded the Seal of Advanced Mathematics and Technology on their diploma. By way of enrollment in any business class, students learn about and participate in their co-curricular organization, the Future Business Leaders of America (FBLA). Students who take courses at the Advanced Technology Center are eligible to participate in SkillsUSA.

Information Technology courses offered at the Advanced Technology Center:

- Software and Game Development (AT6641)
- Advanced Software and Game Development (AT6642)
- Computer Network Administrator I (AT6655)
- Computer Network Administrator II (AT6656)
- CISCO Networking Academy I (AT6657) and CISCO Networking Academy II (AT6658)
- Digital Design I (AT8570) and Digital Design II (AT8571)
- Internet Web Professional (AT6630) and Advanced Internet Web Professional (AT6631)
- Telecommunications I (AT8680) and Telecommunications II (AT8681)

Business and Information Technology

INFORMATION TECHNOLOGY cluster	INFORMATION TECHNOLOGY cluster	INFORMATION TECHNOLOGY cluster	INFORMATION TECHNOLOGY cluster	INFORMATION TECHNOLOGY cluster	FINANCE cluster	BUSINESS MANAGEMENT & ADMINISTARTION cluster
WEB & DIGITAL COMMUNICATIONS	WEB DESIGNER	DATABASE ADMINISTRATION & COMPUTER PROGRAMMING	SOFTWARE APPLICATIONS	INFORMATION TECHNOLOGY ESSENTIALS	ACCOUNTING & FINANCE	BUSINESS ADMINISTRATION
Information Technology Fundamentals – IC^3 Certification **Design, Multimedia and Web Technologies** **Database Management and Administration (Oracle, SQL) –** Introduction to SQL Certification **Database Management and Administration (Oracle PL/SQL) –** Introduction to PL/SQL Certification	**Information Technology Fundamentals –** IC^3 Certification **Web Development and Administration -** Adobe Certified Associate Web Communication using Adobe Dreamweaver Certification **Database Management and Administration (Oracle, SQL) –** Introduction to SQL Certification **Business Management/Virtual Enterprise –** NOCTI Certification	**Information Technology Fundamentals –** IC^3 Certification **Database Management and Administration (Oracle, SQL) –** Introduction to SQL Certification **Advanced Database Management and Administration (Oracle PL/SQL) -** Introduction to PL/SQL Certification **Advanced Placement Computer Science (JAVA) –** AP Exam	**Computer Information Systems –** Microsoft Office Specialists Certification **Advanced Computer Information Systems –** Microsoft Office Specialists Certification **Web Development and Administration –** Adobe Certified Associate Web Communication using Adobe Dreamweaver Certification **Database Management and Administration (Oracle, SQL) –** Introduction to SQL Certification **Or** **Business Management/Virtual Enterprise –** NOCTI Certification WISE Financial Literacy Certification	**Information Technology Fundamentals –** IC^3 Certification **Computer Information Systems –** Microsoft Office Specialists Certification **Web Development and Administration –** Adobe Certified Associate Web Communication using Adobe Dreamweaver Certification **Database Management and Administration (Oracle, SQL) –** Introduction to SQL Certification	**Computer Information Systems –** Microsoft Office Specialists Certification **Financial Management –** WISE Financial Literacy Certification **Accounting I –** NOCTI Accounting Certification QuickBooks Certification **Advanced Accounting–** NOCTI Advanced Accounting Certification QuickBooks Certification **Business Management/Virtual Enterprise –** NOCTI Certification WISE Financial Literacy Certification	**Keyboarding and Design Multimedia and Web Technologies** **Financial Management –** WISE Financial Literacy Certification **Computer Information Systems –** Microsoft Office Specialists Certification **Advanced Computer Information Systems –** Microsoft Office Specialists Certification **Accounting I –** NOCTI Accounting Certification Quick Books Certification **Business Management/Virtual Enterprise –** NOCTI Certification WISE Financial Literacy Certification

Career Pathways for Information Technology cluster: building linkages in IT occupations for entry level, technical, and professional careers related to the design, development, support and management of hardware, software, multi-media and systems integration services such as: network systems, information support and services, Web and digital communications, and programming and software development.

Career pathways for Finance cluster: planning and related services for financial and investment planning, banking, insurance, and business financial management such as: securities and investments, business finance, accounting, insurance, and banking services.

Career pathways for Business Management & Administration cluster: careers in planning, organizing, directing and evaluating business functions essential to efficient and productive business operations such as: general management, business information management, human resource management, operations management, and administrative support.

Engineering and Technology

The engineering courses are focused on career pathways in the areas of science, technology, engineering, and mathematics. Units of study and projects incorporate strong integration of these subject areas. Lesson plans, class projects, speakers, field trips, and instructional materials are often collaboratively devised to maximize student benefit. Reinforcement of previously learned skills and concepts is incorporated into daily learning and applied in various competitions. The courses are project-based, culminating in a senior design class focusing on a final project for presentation. Students are afforded a number of opportunities to earn industry certifications.

A four-year, $25,000 scholarship is offered to one student each year from the Virginia Commonwealth University School of Engineering. The student is selected through a school-based committee. Faculty advisors from the VCU School of Engineering mentor interested students and host a full-day campus tour to assist students with the application/decision process.

The Engineering Department hosts a speaker series, "Eagle Talk," featuring individuals from various professions and expertise who share their vocations, knowledge, and personal experiences with interested students. Compelling presentations in the fields of STEM, sustainability, and the 21st-century workplace are some of the topics addressed.

Community and business partnerships exist with STIHL Inc.; Old Dominion University Frank Batton School of Engineering; Norfolk State University College of Science; Engineering and Technology; Virginia Commonwealth University School of Engineering, Rockwell Collins; AVW Technologies, Inc.; Langley Research Center (NASA); Armed Forces Communications and Electronics Association; and the Virginia Beach Education Foundation, in addition to others. These partners provide resources in funding grants, competition sponsorships, scholarships, software, technical support, summer camps, mentorships, internships, guest speakers and college preparedness.

In addition to the 24 categories of the Technology Student Association competitions, other competitions are available to students. They include, but are not limited to, SNAME, Real World Design, VBCPS Electronics Challenge, Internet Safety Poster, Tidewater Builders' Association Young Designer Scholarship Competition, Great Computer Challenge, FIRST FTC Challenge, and Old Dominion University Engineering Day.

Engineering and Technology Pathway

The Governor's STEM Academy will focus on the Engineering and Technology pathway. The demand for students with these skills in this region and nationally is very high, and a number of local advanced training facilities and postsecondary institutions offer degree programs in this pathway. Students will be advised to take Technical Drawing and Design, Materials Technology, Introduction to Engineering Design, and Engineering Design and Development. Students will be strongly encouraged to take additional electives through the Engineering and Technology Pathway and the Advanced Technology Center, granting them the opportunity to earn additional industry certifications and broadening their scope of studies. Higher-level mathematics such as Calculus and Advanced Placement level science courses, as well as involvement in the TSA student organization and competitions, will be recommended.

Engineering and Technology Pathway Course Descriptions

Technical Drawing and Design

This course is the introduction to the design process used throughout the technology courses. Students learn the history and standards of drafting as well as how to focus on creativity and innovation through design. Computer Aided Drafting (CAD) is emphasized, and this first-year course offers 2D and 3D modeling. Students master the AutoCAD (2012) software at the beginner and intermediate levels. The application of mathematics and physics is applied through the calculations of geometrical relations in CAD as well as bridge-design projects. This mathematical design process is also emphasized to ensure students are prepared for the rigorous projects they will encounter in their future STEM courses in the technology

department. The connecting courses for this class are Introduction to Engineering, Architectural Drawing, Engineering Drawing, and Digital Visualization.

Materials and Processes Technology

Students focus on physical materials and processes as they fabricate usable products and conduct experiments. Learning experiences include the use of tools and equipment related to analysis, testing, and processing of metals, plastics, woods, ceramics, and composite materials. Career analysis is also included. This single-period laboratory course is recommended for students interested in technical careers and others wishing to improve their consumer knowledge and technological literacy.

Some specific competencies include the following:

- List technological developments related to materials and processes technology.
- Explain the benefits of studying materials and processes technology.
- Follow all safety rules and emergency procedures for laboratory work.
- Research careers related to industrial materials and processes.
- Research the responsibilities of the members of an engineering team.
- Participate in an organized personnel system to manage class and laboratory activities.
- Investigate local industry and technical resources related to materials and processes technology.
- Explain the basic structure of atoms and ions.
- Compare the structure of amorphous and crystalline materials.
- Distinguish between materials classified as polymers, ceramics, metals, and composites.
- Explain the origin of various natural and synthetic materials.
- Measure common mechanical properties of selected materials.
- Compare chemical properties of selected materials.
- Use materials testing devices and measuring and layout tools.
- Describe the characteristics and uses of thermoplastics and thermosetting plastics.
- Select appropriate polymer(s) for a product, based on the properties of the material.

- Produce plastic items through use of selected combining techniques.
- Select and use appropriate separating techniques on plastics.
- Select and use appropriate forming techniques on plastics.
- Produce finished surfaces on plastics.
- Apply plastic/polymeric materials and processes to a problem, product design, or prototype.
- Describe the basic structure of metals.
- Compare typical properties of selected metals and alloys.
- Select and perform basic metal forming techniques.
- Select and perform appropriate metal separation processes.
- Select and perform metal combining and finishing techniques.
- Apply metal materials and processes to a problem, product design, or prototype.
- Describe the nature and structure of wood and forest products.
- Determine the physical, mechanical, and chemical properties of woods.
- Select and use separating techniques on woods.
- Select and use wood combining methods.
- Select and apply wood conditioning materials.
- Apply wood materials and processes to a problem, product design, or prototype.
- Explain the origin, types, and uses of ceramics.
- Classify ceramics, based on their properties.
- Identify types and applications of composite materials.
- Produce a composite part or product.

Certification Examinations, Assessments

- Virginia Workplace Readiness Skills

Introduction to Engineering Design

This course provides orientation to the careers and challenges of the various engineering fields within the Science, Technology, Engineering and Mathematics (STEM) cluster. Students enrolled

in the Engineering and Technology pathway study and have opportunities to complete projects in the following areas of engineering:

- History of Engineering
- Prototyping
- Sustainability
- Technical Drawing
- Electrical
- Materials
- Aerospace
- Automotive Design

Students also research careers in each area of engineering to explore future career pathways. They complete hands-on projects based on the concepts and theories reviewed in the coursework.

Engineering Design and Development

These advanced courses within the Science, Technology, Engineering and Mathematics (STEM) career cluster continue to build upon the STEM knowledge and skills obtained in the units covered in the prerequisite Introduction to Engineering Design course.

Students enrolled in this Engineering and Technology pathway study and have opportunities to complete projects in the following fields of engineering:

- Prototyping
- Alternative Energy
- Sustainability
- Mechanical Engineering
- Material Engineering
- Electrical Engineering
- Computer Numerical Control (CNC)
- Manufacturing

Students also research careers in each area to explore future career pathways.

Engineering Drawing and Design

This course provides students with the opportunity to learn the graphic language of industry for engineers, manufacturers, and technicians. It provides students with in-depth experiences in drawing problems and development of skills and techniques. Emphasis is placed on the interpretation of manufacturing and industrial processes and the ability to use handbooks, models, and computer-aided design (CAD) for designing parts and the assembly of simple to complex machines. An important aspect of the course is the application of drafting principles to typical engineering drawing and design problems. The introduction to alternative energy and sustainability is discussed when students are required to design a device/machine. Emphasis is placed on individual and collaborative work in order to produce work exceeding industry standards.

The student must complete Basic Technical Drawing as a prerequisite. The student must master the AutoCAD (2012) software at the beginner and intermediate levels. Academy students in this course should pass with no less than a B in order to use the AutoCAD 2012 and the AutoCAD Inventor software that is required by engineers and manufacturers nationwide. The student must have a working understanding of the following in order to gain entry into this course:

- In the subject area of mathematics: one year of geometry, and one year of algebra
- In the subject area of science: the periodical table and general science
- In the subject area of engineering: exposure to mechanical engineering principles; prototyping
- In the arts and languages: technical writing; history of technology; history of engineering
- In the fields of engineering: have an innate interest in the fields of engineering.

The following units of study shall be covered during the course of the year:

- Careers in Engineering Drawing
- Engineering CAD Fundamentals
- Geometry for Drafting and CAD
- Multi-view Drawing
- Sectional Views
- Fasteners
- Symbols for Various Engineering Drawings
- Working Drawings
- Pattern Development
- 3D Modeling and Rendering
- Individual and Collaborative Projects

These units contain sub-units in which each student will build his/her knowledge base that may lead to a career in the field of engineering drawing and/or related professions.

Certifications and Competitions:

Students enrolled in the Engineering Drawing class may take a NOCTI certification test that, upon passing at 75 percent, demonstrates that he or she has mastered the above units of study and can reliably enter into the work force as a beginner draftsman or CAD operator.

Students may opt to compete at three levels in the Technical Student Association annual competitions. As many as 28 areas of technical subjects for competition are available. Students and teams are given recognition and awarded trophies by the TSA national headquarters and professional associations.

Electronics I and II

These courses cover a wide spectrum of physics-related topics from electricity and electromagnetic principles to digital logic and parallel interfaces. The applications of

mathematics in these courses range from the SI System and algebraic equations through binary and Boolean expressions.

Electronics I provides orientation to the careers and challenges of the field of electrical engineering. Students study the following areas: basic electronics theory, component recognition, and proper use of test equipment. Mathematics and reading skills are emphasized as part of the process of studying these concepts. Focusing on the prototyping of products within each area is a major emphasis of this course. Students also research various workplace skills in each area to help determine their future career path. Activities include fundamentals of electricity, troubleshooting, and assembly of various electronic projects. Students complete hands-on projects based on the concepts and theories reviewed in the coursework.

Electronics II builds upon the knowledge and skills obtained in the units covered in the Introduction to Electronics course. Students study the following topics: basic electronics review, circuit design, wireless networking, AM-FM radio design/construction, RF radio design/construction, and consumer electronics. During the course of the school year, students apply reading and mathematics skills to the study and diagnoses of complex circuits used within these various fields of study. Students are challenged with a variety of case studies that require teamwork, creativity, scientific problem-solving, and the application of science and technological literacy. Students complete hands-on projects based on the concepts and theories reviewed in the coursework. Many scientific concepts from Ohm's, Watt's, and Kirchhoff's Laws to transformer and waveform theory provide an array of lab activities for the student. Primary instruction is provided by the teacher with computer-assisted; real-time assessment results, lab activities, and differentiated/remediation opportunities. Online compatibility extends the instruction into the post-high school/higher education programs of study providing articulated credit for students continuing in the career field. At the conclusion of the two-year sequence, students have the opportunity of obtaining an industry certification in Electronic Technology and Workplace Readiness State Assessment.
Some of the course competencies include:

- Demonstrating critical-thinking and problem-solving skills

- Explaining the operations of electromagnetic devices
- Constructing a working combinational logic circuit using logic gates
- Operating a computer parallel interface
- Crafting a power supply circuit and verifying operations
- Constructing a basic robot
- Maintaining and repairing a computer system

Additional Information for all Engineering Courses

Extensive use of the Landstown Student Web Portal and SchoolNet will be utilized in completing classroom assignments and research in all engineering courses. By way of enrollment in any engineering and technology class, students will learn about and may participate in their co-curricular organization, the Technology Student Association (TSA). Students who take courses at the Advanced Technology Center are eligible to participate in SkillsUSA.

Engineering and Technology courses offered at the Advanced Technology Center:

- Architectural Design (AT8531)
- Computer Aided Drafting and Design I (AT8530) & II (AT8531)
- Engineering Technology I (AT8436) and Engineering Technology II (AT8437)
- Modeling and Simulation (AT8462)
- Marine Engineering and Design (AT8532)

Science, Technology, Engineering & Mathematics
Engineering and Technology

Communications Technology pathway	Technical Design & Illustration pathway	FIRST Tech Challenge Engineering pathway	Electronics Technology pathway	Governor's Academy STEM Engineering and Technology pathway	Occupations relating to these pathways
Photography & Printing* (sem-½ c) *and* Computers & Communication Technology* (sem-½ c) *and* Graphic Communication *and* Digital Visualization (Modeling and Simulation) *or* Geospatial Technology *then* Technical IT Support (Senior Design)	Technical Drawing & Design* *and* Engineering Drawing *or* Architectural Drawing *and* Digital Visualization (Modeling and Simulation) *then* Technical IT Support (Senior Design)	Introduction to Engineering Design* *and* Engineering Design & Development *and* Bioengineering (FIRST Tech Challenge) *then* Technical IT Support (Senior Design)	Electricity/ Electronics Technology I* *and* Electronics Technology II ** *and* Robotics (STEM Robotics Competition) *then* Technical IT Support (Senior Design)	Basic Technical Drawing *and* Materials Technology *and* Introduction to Engineering Design* *then* Engineering Design & Development	▶ Aeronautical Engineer ▶ Aerospace Engineer ▶ Agricultural Engineer ▶ Agricultural Technician ▶ Application Engineer ▶ Architectural Engineer ▶ Automotive Engineer ▶ Biomedical Engineer ▶ Biotechnology Engineer ▶ CAD Technician ▶ Chemical Engineer ▶ Civil Engineer ▶ Communications Engineer ▶ Computer Engineer ▶ Computer Programmer ▶ Construction Engineer ▶ Electrical Engineer ▶ Electronics Technician ▶ Geothermal Engineer ▶ Industrial Engineer ▶ Manufacturing Engineer ▶ Manufacturing Technician ▶ Marine Engineer ▶ Mechanical Engineer ▶ Metallurgist ▶ Mining Engineer ▶ Nuclear Engineer ▶ Petroleum Engineer ▶ Product/Process Engineer ▶ Survey Technician ▶ Systems Engineer ▶ Transportation Engineer
*Prerequisites for Graphic Communications	*Prerequisite for either second year course	*Prerequisite for Engineering Design & Development	*Prerequisite for Electronics II ** Prerequisite for Robotics	*Prerequisite for Engineering Design & Development	
Brainbench Adobe Photoshop Certification NOCTI	AutoCAD Certification *Verified Credit*	NOCTI Certification *Verified Credit*	NOCTI Certification *Verified Credit*	AutoCAD NOCTI Certification *Verified Credit*	

Two full years in any technical education program of study will meet SOQ Code of Virginia §22.1-253.13:3.B.2

(sem-1/2 c) semester-half credit course

Marketing and Entrepreneurship

The Marketing and Entrepreneurship program of study offers thematic courses incorporating real-world marketing activities, such as writing business plans, market research and development, creating Web sites, and portfolios. Students can explore all aspects of entrepreneurship for those interested in opening and operating their own business. Mathematics and economic concepts are integrated into the curriculum. Students can select from four career clusters. Cooperative education experiences are available, as are multiple industry certifications. In Internet Marketing and Web Development and Administration, students work closely with local business partners at Beach Window and Siding and the Virginia Beach Schools Federal Credit Union to complete a second semester final project.

Some of the current Marketing and Entrepreneurship business and community partners include the Art Institutes; Bryant and Stratton College; Junior Achievement of Greater Hampton Roads, Inc.; Goodwill Industries; Y-Street; Hampton Roads Rotary Club; Norfolk Admirals; Constant Convocation Center; EDMARC Hospice for Children; Johnson & Wales; WVEC; ODU Marketing STEM Education Department; Virginia Commonwealth University Department of Fashion and Merchandising; Dillard's; Beach Municipal Federal Credit Union; and the Virginia Beach Schools Federal Credit Union.

The school store Eagle's Landing is maintained and operated by the students in the Marketing and Entrepreneurship program of study. The store is a school-based enterprise certified by DECA Inc. at the silver level for its outstanding achievement. The silver level is the second highest awarded.

Professional Sales Pathway

The Marketing cluster emphasis for the Governor's STEM Academy will be in the pathway of Professional Sales. Our local region is growing and projected to experience further growth in the career pathway for Professional Sales. Students will be advised to take Entrepreneurship, Internet Marketing, Marketing, and Advanced Marketing. Several additional complementary elective courses are offered such as Global Marketing and Commerce,

Advanced Global Marketing and Commerce, Advanced Entrepreneurship, and Fashion Marketing, which has an advanced level component as well as cooperative education opportunities and industry certifications. Students will be encouraged to avail themselves of these opportunities and the FBLA co-curricular organization. Examples of high-level mathematics, science, and technology skills integrated in this pathway will be the use of location-based (GPS) social media, mobile apps, Web TV, the Intercloud, and digital marketing.

Professional Sales Pathway Course Descriptions

Entrepreneurship

This course introduces students to the exciting world of creating, owning, and launching their own business. Students learn concepts and techniques for planning an innovative business and living the entrepreneurial lifestyle. Students study business and economics to discover new business opportunities, risks, and challenges in local, domestic, and/or international ventures. The development of a business plan is an integral component of this course.

Advanced Entrepreneurship

This course is designed for students who wish to concentrate on advanced strategies for entrepreneurship, building upon concepts introduced in Entrepreneurship (9093). The focus of the course is on development of a business plan and small business management. Students establish, market, and maintain a business. The cooperative education method is utilized in this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

Internet Marketing

In this course, students receive an introduction to marketing functions and the business plan. They study Internet marketing's role in the global economy. Students gain knowledge of the tools and techniques used in Internet marketing and learn how to design a Web site. They explore ethical, legal, and security issues and prepare for a career in Internet marketing. Academic skills (mathematics, science, English, and history/social science) related to the

content are integral components of this course. Computer/technology applications supporting this course are also studied.

Marketing

In this course, students examine activities in marketing and business important for success in marketing employment and postsecondary education. Students learn how products are developed, branded, and sold to businesses and consumers. Students analyze industry trends and gain hands-on experience in the marketing of goods, services, and ideas. Topics include professionalism in the workplace, product planning/positioning, promotion, pricing, selling, economic issues, and the impact of technology on the marketplace. This course reinforces mathematics, science, English, and history/social science Standards of Learning (SOL). Computer/technology applications and Distributed Education Club of America activities enhance the course. The cooperative education method is utilized in this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

Advanced Marketing

Here students build on knowledge gained in a prior marketing course. Students participate in supervisory and management activities focusing on marketing mix, purchasing, financing, human resources, global marketing, pricing, and emerging technologies. Students prepare for advancement in marketing careers and postsecondary education. This course reinforces mathematics, science, English, and history/social science Standards of Learning (SOL). Computer/technology applications and DECA activities enhance the course. The cooperative education method is available for this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

Fashion Marketing

In this specialized course, students gain basic knowledge of the apparel and accessories industry and skills necessary for successful employment in apparel businesses. Students

develop general marketing skills necessary for successful employment in fashion marketing as well as specialized skills unique to the apparel and accessories industry. Personal selling, sales promotion, purchasing, physical distribution, market planning, and product/service technology as well as academic skills (mathematics, science, English, and history/social science) related to the content are part of this course. Computer/technology applications supporting this course are also studied. Field study trips and guest speakers supplement the curriculum while providing students real-world examples of the 21st-century workplace and industry.

The cooperative education method is available for this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year. Through this specialized method, students gain real-world knowledge of business practices, ethics, industry trends, technological advances, and customer service. Cooperative education is a valuable tool that complements the curriculum and validates content information.

Advanced Fashion Marketing

In this specialized course, students with a career interest in fashion marketing gain in-depth knowledge of the apparel and accessories industry and skills important for employment in apparel businesses. They develop advanced skills unique to fashion marketing and advanced general marketing skills applied to the apparel and accessories industry. Professional selling, sales promotion, buying, merchandising, marketing research, trend analysis, product/service technology, and supervision as well as academic skills (mathematics, science, English, and history/social science) related to the content are part of this course.

Global Marketing and Commerce

Global Marketing and Commerce is a specialized course for students with a career interest in the field of international trade. Students gain an understanding of the various careers in global trade, finance, distribution, and marketing. They also consider fundamental concepts, principles, and theories of marketing in a global arena. Course content blends economic theory with international culture, politics, and legal issues. Internships may be available to provide

students with additional opportunities for hands-on experiences in international marketing. Academic knowledge and skills (mathematics, science, English, and history/social science) related to the content are integral facets of this course. Computer/technology applications supporting this course are also studied.

Advanced Global Marketing and Commerce

Advanced Global Marketing and Commerce, a specialized course for students with a career interest in international trade, builds upon concepts learned in Global Marketing and Commerce. Economic and international trade concepts are reviewed, and the world environment of international trade is further explored. Students expand their knowledge about the impact of culture on international trade and continue their study of the legal and political aspects of international marketing. Global product strategies are examined, as are concepts detailing entry into international markets, pricing strategies, international promotion, and marketing research. Computer/technology applications supporting international marketing are also explored. A review of skills and preparation required for careers in international marketing complete this course. Internships that provide hands-on opportunities in the international area may be available to students. Academic knowledge and skills (mathematics, science, English, and history/social science) related to the content are important components of this course. Computer/technology applications supporting this course are also studied.

Additional Information for All Entrepreneurship Technology Courses

By way of enrollment in any marketing class, students learn about and participate in their co-curricular organization, DECA. This organization offers students opportunities in leadership, community, and competitive events. Students who take courses at the Advanced Technology Center are eligible to participate in SkillsUSA.

Certification Examinations, Assessments

All marketing courses may assist the student in preparing for the following certification examinations, national assessments, or licensure examinations approved by the Virginia Board of Education:

- Fundamental Marketing Concepts
- National Career Readiness Certificate
- National Professional Certification in Customer Service
- Sales Certification
- Virginia Workplace Readiness Assessment and IC3 Certification
- W!SE Financial Literacy Certification
- Workplace Readiness Skills for the Commonwealth Examination

Marketing and Entrepreneurship courses offered at the Advanced Technology Center:

- Marketing Management (ME8223)
- Marketing Management CO-OP (ME8222)
- Advanced Marketing Management (ME8243)
- Advanced Marketing Management CO-OP (ME8242)

Marketing and Entrepreneurship

Business Management and Administration cluster	Finance cluster	Hospitality & Tourism cluster	Marketing cluster
Pathways: General Management Business Information Management Human Resources Management Operations Management Administrative Support	**Pathways:** Securities and Investments Business Finance Banking Services Insurance Banking Services	**Pathways:** Restaurants and Food/Beverage Service Lodging Travel and Tourism Recreations, Amusements and Attractions	**Pathways:** Professional Sales Merchandising Marketing Management Marketing Communications Marketing Research
Entrepreneurship **Global Marketing and Commerce** **Internet Marketing** **Advanced Entrepreneurship**	**Entrepreneurship** **Global Marketing and Commerce** **Internet Marketing** **Advanced Entrepreneurship**	**Entrepreneurship** **Travel/Tourism Marketing** **SER Marketing** **Advanced levels of SER Marketing or Travel/Tourism Marketing**	**Entrepreneurship** **Internet Marketing** **Marketing** **Advanced Marketing**
Certifications: **NOCTI** **NRF Customer Service** **NRF Sales**	**Certifications:** **NOCTI** **NRF Customer Service** **NRF Sales**	**Certifications:** **NOCTI** **NRF Customer Service** **NRF Sales**	**Certifications:** **NOCTI** **NRF Customer Service** **NRF Sales**

Technology Academy Honors English

The Academy English component consists of four years of honors-level English classes that combine humanities and team-based business and university-level communication, while infusing technical writing/research using technology such as interactive class Web sites, blogging, online assignments and testing, the digital voice recording and editing Audacity program, and preparation of a digital portfolio. Students may earn college credit through the Advanced Placement English class and four semesters of Dual Enrollment English courses offered on campus by Tidewater Community College. Students in the existing Technology Academy and planned Governor's Academy will benefit from these course offerings.

Certifications

Landstown High School and Technology Academy currently offers 22 industry certifications to its student body. These assessments associated with the certifications are a

key measure for the level of understanding with respect to specific skills and knowledge within a program of study, as compared to industry standards. **For four consecutive years, Landstown High School and Technology Academy has led the Virginia Beach City Public School system with the highest number of industry credentials earned by a comprehensive high school.** The school awarded 489 credentials with a pass rate of approximately 80 percent this past year. Two hundred fifteen students successfully earned the distinction of a CTE completer by finishing a two-year sequence of classes in a specific subject area within the program (see data chart-following page).

The 21 Workplace Readiness Skills for the Commonwealth are incorporated into every class in the program. In keeping with the theme of our divisionwide plan for student success, "Compass to 2015," the integration of 21st-century themes and skills into the curriculum is essential for our students' success. These skills include critical-thinking, creative/innovative-thinking, problem-solving, information literacy, listening, collaboration, communication, social responsibility, sustainability, interdependence, and health literacy. These 21st-century themes mirror those needs identified by Virginia employers as workplace readiness skills (WRS). Students are offered multiple opportunities to sit for the WRS certification while on campus. Annually, the number of students taking/passing this exam has increased. **Last year, the Landstown High School and Technology Academy program received the distinction of earning the highest number of WRS credentials in the Commonwealth of Virginia.** The 2011 posttest data indicate that 182 students passed the WRS exam, with a pass rate of 85.5 percent. The average score on the exam was 81.7, exceeding the division average.

VBCPS – Landstown High School

Virginia Workplace Readiness
2011Posttest Data by CTE Program Area

Program Area Division Average	Taken	Passed	% Passed	Average Score	Reading	Mathematics	Writing	Speaking and Listening	Computer Skills	Problem Solving	Big Picture	Work Ethic	Positive Attitude	Independence	Self -Presentation Skills	Attendance	Team Work
Business and Information Technology (BIT) (82.5%)	46	38	82.6	79.8	83.5	76.6	85.6	75.0	63.8	78.9	77.9	86.4	85.6	82.3	82.4	89.5	72.2
Engineering and Technology Education (ET) (82.9%)	92	87	94.6	84.8	85.0	83.2	87.5	77.6	69.2	83.8	84.2	91.3	91.0	87.2	88.4	95.1	78.2
Family and Consumer Sciences (FACS) (70.4%)	30	26	86.7	80.9	77.3	78.5	79.6	77.5	57.2	73.3	83.9	91.7	91.3	86.3	85.9	92.2	73.7
Marketing Education (ME) (84.1%)	44	31	70.5	78.1	82.3	69.7	81.5	74.7	59.1	71.7	76.1	84.8	88.9	81.8	82.3	93.2	70.0
School Average	212	182	85.8	81.7	83.0	78.3	84.7	76.4	64.2	78.8	81.1	89.0	89.4	84.9	85.5	93.1	74.5
Division Total Average	1977	1580	79.9	78.9	80.4	73.9	79.7	74.5	61.9	76.5	78.8	87.5	87.0	80.6	83.0	91.3	71.3

Landstown High School
Industry Credential Detail 2011

2010–2011 Landstown High School Industry Credential Detail by Program Area

#	Credential/Issuing Organization	Tested	Passed	% Passed	Verified Credit	Program Area
1	**Accounting Basic**—NOCTI	10	4	40.0%	Y	BIT
2	**CIW Foundations SDF Module**—Certification Partners, LLC	8	7	87.5%	Y	BIT
3	**CIW Site Development Foundations**—Certification Partners, LLC	2	0	0.0%	Y	BIT
4	**IC3 Global Standards Computing Fundamentals**—Certiport	32	32	100.0%	Y	BIT

#	Credential/Issuing Organization	Tested	Passed	% Passed	Verified Credit	Program Area
5	**IC3 Global Standards Key Applications**—Certiport	33	33	100.0%	Y	BIT
6	**IC3 Global Standards Living Online**—Certiport	30	30	100.0%	Y	BIT
7	**MOS Excel 2007**—Certiport	5	4	80.0%	Y	BIT
8	**MOS PowerPoint 2007**—Certiport	22	20	90.9%	Y	BIT
9	**MOS Word 2007**—Certiport	24	24	100.0%	Y	BIT
10	**Oracle Certification: Introduction to SQL**—Oracle Corporation	1	0	0.0%	Y	BIT
11	**AAFCS: Broad Field Family and Consumer Science**—American Association of Family and Consumer Science	4	3	75.0%	Y	FACS
12	**AAFCS: Interior Design**—American Association of Family and Consumer Science	7	3	42.9%	Y	FACS
13	**ServSafe Certification**—National Restaurant Association	19	19	100.0%	Y	FACS
14	**Customer Service Professional**—National Retail Federation Foundation	54	51	94.4%	Y	ME
15	**Sales**—National Retail Federation Foundation	6	6	100.0%	Y	ME
16	**3D Studio Max**—Brainbench	16	16	100.0%	Y	ET
17	**Adobe Certified Associate: Photoshop**—Certiport	6	5	83.3%	Y	ET
18	**Advertising and Design**—NOCTI	15	7	46.7%	Y	ET
19	**AutoCAD 2010**—Certiport	53	11	20.8%	Y	ET
20	**Electronic Technology**—NOCTI	49	20	40.8%	Y	ET
21	**Pre-Engineering**—NOCTI	15	12	80.0%	Y	ET
22	**Virginia Workplace Readiness**—NOCTI	212	182	85.8%	Y	ALL
	TOTAL	**623**	**489**	**78.5%**	**n/a**	**n/a**

Performance Measures/Data

Standards of Learning tests results are one important source of data to compare the achievement to students within the program to those who are not. SOL data for the 2011 year indicate that Academy students scored at a substantially higher rate than their counterparts in the general school body. The scores are as follows:

Academy pass rate	Landstown pass rate
Algebra II = 98% (+16% higher than LHS)	Algebra II = 82%
Science = 99% (+12% higher than LHS)	Science = 87%
English (Reading/Writing) = 97% (+5% higher than LHS)	English (Reading/Writing) = 92%

Since the inaugural graduating class in 2005, the program has maintained a 0 percent high school drop-out rate. As acceptance numbers in the Academy have reached program capacity, there has been a correlating increase in graduates. Ninth-grade program participants are administered the PSAT to prepare them for future testing. Program participants historically have achieved higher overall GPA's, SAT, and ACT test scores and pass/advance status. The majority of students attaining the distinction of Principal's Honor Roll each nine weeks are within the Academy. The initiation of the Governor's STEM Academy will increase the number of students achieving at high levels in all areas. The plans of study for each of the career pathways will promote higher levels of learning in science, mathematics, and CTE courses. The Academy Program Coordinator, School Improvement Specialist, and Guidance Department collect various forms of data on the performance of students participating in the program. Comparison data will be collected from the main student body to compare with those attending the Technology Academy and the Governor's STEM Academy for program evaluation.

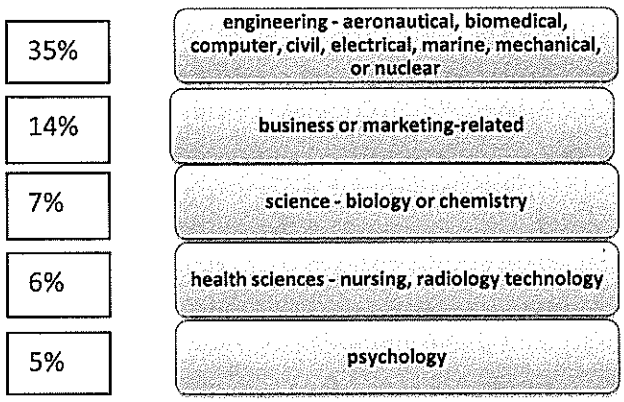
CTE completers in the program are surveyed about their educational and workplace-related experiences. The most recent survey was completed by 211 former students. When asked how satisfied they were with the preparation they received in this high school program for further education or employment, 100 percent responded that they were very satisfied. Currently, 86 percent are full-time/part-time students, with 50 percent employed either full-time or part-time. Nearly three-fourths report they are applying the skills and information they

learned in their CTE/Academy courses in their current occupation most or some of the time. Currently, 80 percent are or have received training or other education since graduating from high school. Of the 162 students who responded to the question of to what extent their current area of study related to the CTE/Academy program in high school, 83 percent responded affirmatively that their training or other education did correlate to their CTE/Academy program.

The Virginia Beach City Public Schools Department of Educational Leadership and Assessment conducts an annual longitudinal tracking schedule of the program as part of the Academy Longitudinal Study. There are several components of the study including monitoring enrollment and collecting academic data for students in the program, conducting exit surveys of students enrolled in the program when they reach the final year of academic enrollment, administering periodic follow-up surveys to students post-high school graduation, and obtaining data regarding students' college enrollment. Program exit surveys are administered. For comparison purposes, a non-academy senior annual climate survey is administered to those students who do not participate in the Academy program. In addition to the exit surveys, former Academy students who graduated from the program receive post-graduation surveys. These surveys are based on the program's specific goals and objectives and focused on the program's impact on students' decisions following high school as well as their level of preparation for their education and employment.

Results of the most current senior exit survey indicate that more than two-thirds of those surveyed were academically challenged, received technical training using state-of-the-art technology, and participated in career-oriented activities preparing them to enter the job market in a technology-related career or continuing their education in a technology-related field. Eighty-six percent responded that they had earned college credit while in the program and over two-thirds earned one or more industry certifications. Associate degrees were actually earned by 7 percent of the students by the time of graduation from the program. Eighty-two percent of the 2011 graduates planned to attend a four-year college and 17 percent

were to enroll in a two-year community college in the fall. The intended majors for the students were:



Seventy-four percent of the students planned to work in a field relative to their Academy focus while furthering their education.

Parents, staff, and partners are given the opportunity to provide feedback on the Academy program through a variety of in-house surveys. The division provides an additional venue through a formal climate survey administered annually. The results of these surveys become the main focus of possible revisions and changes to the program policies, procedures, and mission. Various data collected within the school and division is reported in the Annual School Report Card that is submitted to the Virginia Department of Education.

Academy Five-Year Plan

The Academy program is driven by a planning process that supports our mission. The mission of Landstown High School and Technology Academy, in partnership with family and community, is to provide a balanced and diverse educational experience, through the integration of academics, electives, and technology to allow students to discover and develop their full potential for performance and success. The innovative learning environment of the Technology Academy features a cutting-edge curriculum especially designed for students with a deep interest in, and talent for, technology by providing them with the opportunity of combining academic and technical training to prepare them for a variety of post-graduation

choices: entry-level jobs, advanced technical training, or college or university studies. An ongoing plan that outlines and monitors the program policies and procedures; delivery and scope of services; program recruitment and participation; required resources; technology and equipment needs; and curriculum development and staffing needs is reviewed yearly. This plan is revised yearly and is continuously realigned to adhere to the program, school, and division goals, as well as student needs. The Advisory Committee for the Governor's STEM Academy will play a crucial part of this internal review process. New components for future expansion of the Governor's STEM pathways in each cluster will be incorporated into the plan. This will include the designing of collaborative instructional lessons/units and projects between mathematics, science and the pathway CTE classes, creating an ongoing marketing program, and increasing the partnerships with higher education and business and industry to meet the specific needs of the Governor's Academy.

Materials and equipment purchases are aligned to the Academy's five-year plan. Each classroom consists of 25 desktop workstations, a Promethean board, laser printers, an overhead multimedia projector, and an available cart of additional laptop computers. The necessary software for each course is downloaded on the workstations. Color printers and plotters are provided, as well. Each classroom/lab is fully equipped with the necessary tools, equipment, storage, and work space to perform the functions of the subject taught in that venue.

Administrative Procedures

Partnerships

Partnerships with local businesses, nonprofit organizations, and institutions of higher learning are an integral component of our program. Each strand has secured relationships with the necessary entities to ensure students gain maximum exposure to content knowledge, skills, and real-life experiences to prepare them for the 21st-century workplace, advanced technical training, or the postsecondary setting. As a result of the Governor's STEM Academy Proposal Planning and Advisory Committees, ongoing and new resources have been secured to meet the

expectations of our program proposal. These entities will provide guidance and advice in the development, monitoring, and evaluating of our program goals and curriculum to meet the needs of our students and the local work force, as well as opportunities for students to receive mentorships, real-life application of skills, and post-high school guidance.

Within the Marketing cluster, cooperative education experiences have been secured with numerous local businesses to allow students to gain work experience in the professional sales environment. Cooperative Education contracts, outlining the program expectations, are secured between the merchants and the students. Some of our current cooperative business partners include Chick-fil-A; Princess Anne Recreation Center; Rite Aid; Norfolk Admirals; Total Sportswear Solutions LLC; Dillard's; Nordstrom; as well as a host of others in the marketing and sales venue. Contracts for 2012–2013 will be secured at the beginning of the 2012 school year. Our school store, Eagle's Landing, is maintained and operated by marketing students in conjunction with the vendor, School House. Students enrolled in the Marketing cluster will be given priority for this opportunity. The instructors participate in the STEM Marketing, Technology, and Fashion program in conjunction with Old Dominion University which provides teacher training for the program. Bryant and Stratton College, Virginia Commonwealth University, and Johnson & Wales University also provide career, advance technical training, and postsecondary planning through campus visits and mentoring.

The Information Technology cluster has developed a collaborative Web project with local businesses, that allows students to apply the skills they have gained through their IT classes to develop Web sites for these merchants. This real-life interaction prepares students for success in the Web and Digital Communications career pathway. Students work with the business owners to design a client Web site culminating in a final professional formal presentation to the proprietors and a panel of evaluators. Expansion of this project is expected as the student participation in this cluster increases through the Governor's STEM Academy. Students enrolled in Web Design and Administration and Internet Marketing will participate in this project next year with the support of several business partners including Beach Window and Siding and the Virginia Beach Schools Federal Credit Union. Additional business partners

will be acquired in the spring of 2012 for next year's project. InMotion Hostings, Inc. has recently partnered with the Web Design and Administration and Internet Marketing students in anticipation of the Governor's STEM Academy. They are an industry leader specializing in Web hosting and Web design. Through this venture, students will be exposed first-hand to technologies and best practices utilized in the Web hosting and Web design industry. They will have the opportunity to participate in job shadowing and mentorship programs with industry leaders, gaining a real-world view of what to expect in a high-tech environment. The Division of Information Technology and Business at Tidewater Community College serves in the capacity as an advisor to the department. Post-graduation advanced training opportunities will be administered by ECPI and ITT Technical through site visits and academic advising and recruitment.

Students focused in the STEM cluster with an emphasis in the career pathway of Engineering and Technology forged a relationship with Virginia FIRST FTC this year. As a result, two teams of students were formed and prepared for the FIRST FTC competition under the guidance and direction of Virginia FIRST. Rockwell Collins and STIHL, INC. were the corporate sponsors for our 2011–2012 teams. The two teams placed first and second in the FIRST Robotics Regional Qualification Tournament hosted at Norfolk State University and will be advancing to the State FIRST competition in March. Sponsorship for the 2012–2013 teams has been secured with AVW Technologies, INC., a local defense contractor, and additional sponsors will be acquired in the spring of 2012. Virginia Commonwealth University School of Engineering will provide mentorships and college preparedness for our Engineering and Technology students and fund a yearly scholarship endowment of $6,250 totaling $25,000 over four years. We will continue to participate in the Old Dominion University Frank Batton School of Engineering and Norfolk State University College of Science, Engineering, and Technology Open Houses, Auburn University Engineering Day, and Virginia Polytechnic Institute recruiting events and other such opportunities offered to our students by postsecondary institutions with increased student participation in the Governor's STEM Academy anticipated. Instructional software from Newfangled Solutions LLC (Artsoft), White Box Learning, and TEN80 Education will be acquired to enhance the curriculum and reinforce STEM-related skills and concepts. The

Engineering Department will reapply for current STEM grants sponsored through the Virginia Beach Education Foundation.

Student Recruitment/Selection/Admission

Students are selected through an application process. During their middle school years, students are given information and the program overview by the middle school guidance counselors and Academy Coordinator. Current high school freshmen are recruited, as well. Open house programs and various informational events such as a Live Chat forum, Parent Connection, African-American Male Summit, school visits, shadowing, and STEM awareness events are held prior to the application period. Events emphasizing recruitment of females and minorities are held throughout the division. Prospective students receive an application for the programs in the fall of their eighth-grade year. Completed applications are due to the guidance counselor by February 1st of that school year. The application process consists of several components including student achievement data, one parent and four teacher recommendations, transcripts, an interest essay, and an electronic portfolio. The electronic portfolio consists of three projects (selected from a list of 12) that demonstrate the student's current level of interest and understanding of the specific content areas of information and technology, entrepreneurship technology, and engineering and technology. A selection committee reviews each application and determines which candidates will be awarded acceptance into the program based on the number of seats available at each level of the program. Students offered acceptance attend a special registration session held in April during which they receive counseling and register for their fall classes. At this time, students declare a strand(s) of focus and within their strand(s) a sequence(s) of interest to follow. Upon approval as a Governor's STEM Academy, the current divisionwide application will be amended to reflect this opportunity. During registration, students who desire to pursue the Governor's STEM Academy will select their pathway of study and develop a specialized four-year plan incorporating the recommended science and mathematics courses to complement their pathway.

Code of Student Conduct and Attendance

Applicants must submit the Admissions Agreement form provided in the application with the student and parent signatures. This Admissions Agreement outlines the terms and conditions for participation in the program, including adherence to the Academy program rules as well as those outlined in the Student Handbook and Code of Student Conduct for Virginia Beach City Public Schools. Class participation and work completion/submission expectations, academic integrity, attendance requirements, and fulfillment of Academy program requirements are also delineated.

Transportation

All students who are accepted into the Technology Academy program are guaranteed round-trip school bus transportation no matter where they reside in the city. Due to the demand and high volume of students remaining to participate in program activities and extra-curricular events, after the conclusion of regular school hours at 2 p.m., a secondary bus run (referred to as activity busses) transports those students home at 4:45 p.m. each day.

Staff Recruitment/Selection/Assignment

All staff meet the Virginia teacher licensure requirements and hold the appropriate endorsements. All Academy staff are qualified Career and Technical Education teachers certified in their field of instruction and hold industry certification, thus meeting the high standards for teachers. When a position becomes available within the program, extensive research and recruitment are conducted to find an experienced and appropriate staff member. Staff are assigned teaching duties and responsibilities based on their certification, experience, and expertise.

The Academy Coordinator position was created with the inception of the Technology Academy in 2001. This individual serves in the capacity as the lead administrator for the Academy program and oversees the day-to-day operations and long-term needs.

Staff Development

Staff development is designed to enhance teacher preparation for instruction and to meet the needs of the teachers and the program. All instructors receive comprehensive training through the Career and Technical Education program. Additional training is required and obtained through the school division and the home schools' professional development program (PDP) in alignment with our division and school plans for continuous improvement. Specialized Academy professional development is mandated through programmatic and division requirements, such as the Academy five-year plan and the plan for continuous student improvement. PDP can be addressed through a variety of mediums such as online training, video-conferencing, contracted trainers, presenters, collaborative teacher sessions, and school visits. Teachers are allotted one 90-minute planning section per day and department chairs have an additional planning section to assist with departmental and Academy-related needs.

Staff Evaluation

Staff is evaluated based on the guidelines from the division human resource department. The frequency and number of observations and evaluations is based on the teacher's experience and time in their position. Teachers deemed in need of assistance are provided resources and training to address deficits. They may be placed on a plan of assistance/action plan if the need for improvement is not met within a reasonable period of time.

Parent/Student/Community Involvement

Guidance planning begins for students in the seventh grade, when they become eligible to take high school credit courses. In seventh and eighth grades, students are administered an interest and ability inventory through Virginia View. In December of the year prior to entering high school, incoming freshmen and parents participate in a pre-transitional activity called Eagle Connection/Expo. This endeavor gives students an opportunity to experience the high school setting first-hand and learn more about the various programs of study that are offered. A special registration session is held exclusively for incoming Academy students in April.

Students and parents receive one-on-one counseling as they begin registering for their first year of courses. In August, before the start of school, students and parents are invited back to the Fresh Start function featuring community members and school organizations that help prepare students for the transition to high school. During the school year, the guidance department hosts a Career Fair for juniors and seniors. Community representatives from business, higher education, and technical training attend this function. Entities represented on the Governor's STEM Advisory Committee will be included in this event to address students' interests and needs in the Governor's STEM Academy pathways. Guidance counselors meet with all students at least twice yearly to discuss individualized academic/career plans and make adjustments as necessary. These are four-year plans developed from information gathered since the students' seventh-grade year. The plans guide the students through their four years of high school in preparation for a variety of postsecondary options. Once students have determined their goal for post-graduation, the guidance counselor designs the plan to meet this objective. Topics discussed include the type of diploma the student is seeking, seals, and completion of specialized programs. These plans are communicated to the parents and follow-up conferences are scheduled as needed to address revisions. Students selecting a Governor's STEM Academy pathway will complete this planning process with continuous monitoring by the guidance counselor and Academy Coordinator. To assess objectives as outlined in Compass to 2015, all juniors are administered the College Work Readiness Assessment (CWRA). This tool measures the extent to which the courses have prepared the students for college and the workplace, as compared to others across the nation. As part of college preparedness, all students enrolled in an Academy English class are administered the PSAT as ninth and tenth graders. A career program interest inventory assessment, Virginia Wizard, is administered to all tenth graders to gain more insight into specific career choices, college planning, and educational options. Virginia Wizard resources are utilized in all coures to assist the instructors in individualizing plans for students. As we approach the entrance of our first graduating class, the guidance department will carefully advise and monitor the progress of all potential candidates to meet Advanced Studies Diploma requirements. This includes reviews of the students' academic plans and course verification.

Parents and community members are active participants and supporters of the many endeavors in which our students compete and the conferences they attend. Students in the Information Technology cluster participate in such competitions as Great Computer Challenge and Virtual Enterprise at regional, state, and national Future Business Leaders of America conferences. Through these programs they gain invaluable leadership and workplace readiness skills. Students in the Marketing cluster participate in DECA competitions at district, state, and international leadership development conferences. The Engineering and Technology students participate in the Virginia FIRST FTC Challenge, VEX competitions, Great Computer Challenge, Old Dominion University Engineering Day, Tidewater Builders Association Young Designer's Scholarship competition, Virginia Beach Electronics Challenge, Virginia Beach STEM Robotics competition, and various categories within the Technology Student Association competition at the regional, state, and national levels. Parent and community resources serve in the capacity as advisors, mentors, organizers, chaperones, and coaches for all Career and Technical Student Organizations.

Opportunities for students to visit college and university campuses and institutions for technical training and to participate in specialized camps are provided by several members of our planning and advisory committees. We will continue to seek out and recruit targeted and interested students to benefit from these experiences within the Governor's STEM Academy creating additional opportunities for students to obtain career and postsecondary counseling. A plan has been created to host a Career Fair for Technology and Governor's STEM Academy students in 2012-2013 and each subsequent year.

Budget Narrative

All start-up expenses required for the Engineering and Technology, Marketing, and Information Technology clusters were incurred with the establishment of the Technology Academy in 2001. The school division provided funding for staffing, equipment, software, training, instructional needs, consumables, and other miscellaneous expenditures. The Academy program receives a yearly budget of approximately $38,000 to maintain re-occurring support, equipment, and instructional expenses. The support budget is $7,105 and covers the

cost for professional improvement and staff office supplies. An additional $21,141 is allocated for student support and instructional needs. The technology equipment budget is $9,440. Staffing and transportation costs are absorbed through the division and school budget. Computer replacement is directed and funded through the division technology plan. Additional funding is secured through various grants and reversion funds. Basic equipment replacement is funded through the Technical and Career Education budget and the division. Perkins funds are allocated through the CTE office to cover various costs for the program.

Funding for curriculum writing and professional development totaling $2,140 is available within the existing Academy budget. Revisions and alignment to our current curriculum and program will be addressed and funded through this existing budget as program needs dictate. All printed and online textbook/reference materials required for the pathways have been purchased this year through Perkins and Academy funds. Software purchases and leases expenditures are subsidized in the 2012–2013 Academy budget. Each year the division receives reversion funds. In the past five years, the Academy program has received more than $500,000 in additional funding from such monies. These funds have been utilized to make major equipment purchases to enhance the program. We will continue to seek out these funds whenever available and use them to augment the program budget.

Appendices

Appendix A:

Planning

Committee

Members

Planning Committee Members

Dr. James Merrill	Superintendent of Virginia Beach City Public Schools	VBCPS 2512 George Mason Drive, P. O. Box 6038 Virginia Beach, VA 23456-0038 757-263-1007
Dr. Sheila Magula	Deputy Superintendent of VBCPS	VBCPS 2512 George Mason Drive, P. O. Box 6038 Virginia Beach, VA 23456-0038 757-263-1390
Mrs. Jobynia Caldwell	Assistant Superintendent of High Schools for VBCPS	VBCPS 2512 George Mason Drive, P. O. Box 6038 Virginia Beach, VA 23456-0038 757-263-1088
Mr. Rodney Burnsworth	Assistant Superintendent of Curriculum and Instruction for VBCPS	VBCPS 2512 George Mason Drive, P. O. Box 6038 Virginia Beach, VA 23456-0038 757-263-1070
Dr. Pat Konopnicki	Director for the Office of Technical and Career Education for VBCPS	Advanced Technology Center 1800 College Crescent Virginia Beach, VA 23453 757-648-6200
Mr. Jerry Stewart, CEcD	Workforce Development Coordinator Department of Economic Development Chairman for General Advisory Council for Technical & Career Education VBCPS	Virginia Beach Department of Economic Development 222 Central Park Avenue Virginia Beach, VA 23462 757-385-6437
Mr. Farrell Hanzaker	Chief Financial Officer of the Department of Budget and Finance for VBCPS	VBCPS 2512 George Mason Drive, P. O. Box 6038 Virginia Beach, VA 23456-0038 757-263-1066

Mr. Ramesh Kapoor	Chief Information Officer of the Department of Technology for VBCPS	VBCPS 2512 George Mason Drive, P. O. Box 6038 Virginia Beach, VA 23456-0038 757-263-1100
Mr. Todd Tarkenton	Director of Secondary Instructional Services including Academy Programs for VBCPS	VBCPS 2512 George Mason Drive, P. O. Box 6038 Virginia Beach, VA 23456-0038 757-263-1070
Dr. Brian Matney	Principal of Landstown High School and Technology Academy	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5549
Mrs. Lisette Diehl	Coordinator of the Technology Academy at Landstown High School	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5505
Dr. James Barger	Engineering Technology Departmental Chairperson	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5500
Ms. Nancy Dowding	Information Technology/Business Departmental Chairperson	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5500
Mrs. Ann King	Entrepreneurship Technology/Marketing Departmental Chairperson	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5500
Mr. Tom Langley, PE, LS	President Langley & McDonald	Langley & McDonald 309 Lynnhaven Parkway Virginia Beach, VA 23452 757-463-4306

Mr. Simon Nance	STIHL Incorporated Manager of Training and Development	STIHL Incorporated 536 Viking Drive P.O. Box 2015 Virginia Beach, VA 23450-2015 757-486-9222
Dr. Larry Mattix	Norfolk State University Acting Dean of the College of Science, Engineering and Technology	Norfolk State University CSET 700 Park Avenue Norfolk, VA 23504 757-823-9444
Michael Kosloski, Ph.D.	Old Dominion University Assistant Professor STEM Marketing Education Program Director & Training Specialist Program Director	Old Dominion University STEMPS Department Education Bldg. Room 228 Norfolk, VA 23529 757-683-3314

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

STATEMENT OF ASSURANCES and Planning Committee Agreement

The authorized signature on this page certifies to the Virginia Department of Education that the authorized official assures that:

1. As a member of the planning committee, I have received and reviewed the provisions of *Administrative Procedures Guide for the Establishment of Governor's STEM Academies* outlined in the Guidance Manual, and understand that an implementation proposal will need to address these criteria and/or others approved by the Virginia Board of Education.

2. As a member of the planning committee, I agree to follow the guidelines set forth in the *Administrative Procedures* Guide for the Establishment of Governor's STEM Academy's document.

3. A public, government entity will serve as the grant fiscal agent.

Certification by Authorized or Institutional Official:

By signing this agreement, I certify that I am a willing supporter and participant in the process of establishing a Governor's STEM Academy. I certify that to the best of my knowledge the information in this application is correct, that the filing of this application is duly authorized by the partners participating in this process to establish a Governor's STEM Academy, and that the applicant will comply with the statements of assurances.

Dr. James G. Merrill	Superintendent
Typed or Printed Name of Authorized Official	Title
Signature of Authorized Official	11/29/11
	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

STATEMENT OF ASSURANCES and Planning Committee Agreement

The authorized signature on this page certifies to the Virginia Department of Education that the authorized official assures that:

1. As a member of the planning committee, I have received and reviewed the provisions of *Administrative Procedures Guide for the Establishment of Governor's STEM Academies* outlined in the Guidance Manual, and understand that an implementation proposal will need to address these criteria and/or others approved by the Virginia Board of Education.

2. As a member of the planning committee, I agree to follow the guidelines set forth in the *Administrative Procedures* Guide for the Establishment of Governor's STEM Academy's document.

3. A public, government entity will serve as the grant fiscal agent.

Certification by Authorized or Institutional Official:

By signing this agreement, I certify that I am a willing supporter and participant in the process of establishing a Governor's STEM Academy. I certify that to the best of my knowledge the information in this application is correct, that the filing of this application is duly authorized by the partners participating in this process to establish a Governor's STEM Academy, and that the applicant will comply with the statements of assurances.

Dr. Sheila Magula	Deputy Superintendent
Typed or Printed Name of Authorized Official	Title
Sheila S. Magula	November 29, 2011
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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3. A public, government entity will serve as the grant fiscal agent.

Certification by Authorized or Institutional Official:

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Mrs. Jobynia Caldwell	Assistant Superintendent of High Schools
Typed or Printed Name of Authorized Official	Title
Jobynia B. Caldwell	November 28, 2011
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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3. A public, government entity will serve as the grant fiscal agent.

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Mr. Joe Burnsworth	Assistant Superintendent of Curriculum and Instruction
Typed or Printed Name of Authorized Official	Title
Joe Burnsworth	November 28, 2011
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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PATRICK M. KONOPNICKI
Typed or Printed Name of Authorized Official

DIRECTOR, TCE
Title

Signature of Authorized Official

11/28/11
Date

Governor's Science, Technology, Engineering
and
Mathematics (STEM)
Academy

STATEMENT OF ASSURANCES and Planning Committee Agreement

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3. A public, government entity will serve as the grant fiscal agent.

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JERRY W STEWART
Typed or Printed Name of Authorized Official

TCE GENERAL ADVISORY COUNCIL, CHAIR
Title

Signature of Authorized Official

11/29/11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Mr. Farrell Hanzaker	Chief Financial Officer
Typed or Printed Name of Authorized Official	Title
Farrell Hanzaker	11/28/11
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Mr. Ramesh Kapoor	Chief Information Officer Department of Technology
Typed or Printed Name of Authorized Official	Title
Ramesh Kapoor	11/29/2011
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Mr. Todd Tarkenton	Director of Secondary Instructional Services and Academy Programs
Typed or Printed Name of Authorized Official	Title
C. Todd Tarkenton	11-28-11
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Dr. Brian K. Matney	Principal, Landstown High School and Technology Academy
Typed or Printed Name of Authorized Official	Title
	11/29/11
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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R. Lisette Diehl
Typed or Printed Name of Authorized Official

LHS Technology Academy Coordinator
Title

R. Lisette Diehl
Signature of Authorized Official

11/4/11
Date

Governor's Science, Technology, Engineering
and
Mathematics (STEM)
Academy

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James E. Barger	Dept. Chair Pre-engineering
Typed or Printed Name of Authorized Official	Title
J. Barger	11/3/11
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Nancy Dowding	Business + IT Teacher
Typed or Printed Name of Authorized Official	Title
Nancy G Dowding	Nov 3 2011
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Ann King
Typed or Printed Name of Authorized Official

Marketing Teacher
Title

Ann King
Signature of Authorized Official

Nov. 3, 2011
Date

Governor's Science, Technology, Engineering
and
Mathematics (STEM)
Academy

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Tom B. Langley
Typed or Printed Name of Authorized Official

President Langley + McDonald
Title

Tom B. Langley
Signature of Authorized Official

11/8/11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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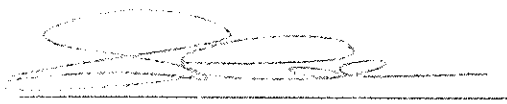
Simon Nance	Manager - Training & Development STITE Inc
Typed or Printed Name of Authorized Official	Title
	7 Nov '11
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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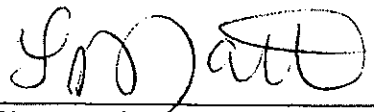
Larry Mattix	Acting Dean, CSET, Norfolk State Univ.
Typed or Printed Name of Authorized Official	Title
	11/08/2011
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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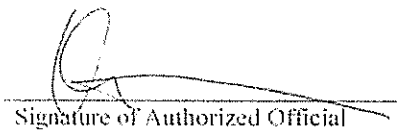
Michael Kosloski	Asst. Professor, STEM Education and
Typed or Printed Name of Authorized Official	Title Professional Studies
	November 10, 2011
Signature of Authorized Official	Date

Appendix B:

Advisory

Committee

Members

Advisory Committee Members

Dr. Brian Matney	Principal of Landstown High School and Technology Academy	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5549
Mrs. Lisette Diehl	Coordinator of the Technology Academy at Landstown High School	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5505
Mrs. Natasha Christian	Assistant Principal Science Department Administrator Landstown High School	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5544
Dr. James Barger	Engineering Technology Departmental Chairperson Technology Academy @ Landstown High School	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5500
Ms. Nancy Dowding	Information Technology/Business Departmental Chairperson Technology Academy @ Landstown High School	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5500
Mrs. Ann King	Entrepreneurship Technology/Marketing Departmental Chairperson Technology Academy @ Landstown High School	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5500
Mr. Ronald Shaneyfelt	Science Teacher and NASA liaison Landstown High School and Technology Academy	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5500
Mrs. Lisa Ferran	Math/Computer Teacher Landstown High School and Technology Academy	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5500
Mr. Lavell White	Technology Academy Guidance liaison Landstown High School and Technology Academy	Landstown High School and Technology Academy 2001 Concert Drive Virginia Beach, VA 23456 757-648-5541

Linda J. Love, Ed.D.	Instructional Specialist Office of Compensatory Programs and Intervention VBCPS	VBCPS 2512 George Mason Drive Virginia Beach, VA 23456 757-263-1188
Mrs. Rhonda Doak	Coordinator for Business and Information Technology Office of Technical Career Education VBCPS	Advanced Technology Center 1800 College Crescent Virginia Beach, VA 23453 757-648-6180
Ms. Susan Dozier	Tidewater Community College Professor Division of Information Technology & Business	Tidewater Community College 1700 College Crescent Virginia Beach, VA 23453 757-822-7048
Dr. Larry Mattix	Norfolk State University Acting Dean of the College of Science, Engineering and Technology	Norfolk State University CSET 700 Park Avenue Norfolk, VA 23504 757-823-9444
Michael Kosloski, Ph.D.	Old Dominion University Assistant Professor STEM Marketing Education Program Director & Training Specialist Program Director	Old Dominion University STEMPS Department Education Bldg. room 228 Norfolk, VA 23529 757-683-3314
Mr. Mark Meadows	Virginia Commonwealth University Director of Student Recruitment Engineering	VCU West Hall 601 West Main Street P.O. Box 843068 Richmond, VA 23284 804-827-4005
Mr. Frank Gomez	ECPI University Freshman Admissions Presenter	ECPI University 5555 Greenwich Road Virginia Beach, VA 23462 757-715-5309
Mr. Simon Nance	STIHL Incorporated Manager of Training and Development	STIHL Incorporated 536 Viking Drive P.O. Box 2015 Virginia Beach, VA 23450-2015 757-486-9222
Ms. Carol Edelman	VAFIRST FTC Team Development Coordinator	Science Museum of Virginia 2500 West Broad Street Richmond, VA 23220 804-513-7381
Ms. Sally Sylvester	FIRST Senior Mentor	3709 Sovereign Lane Richmond, VA 23233 804-360-4728

Mr. Tom Langley, PE, LS	President Langley & McDonald	Langley & McDonald 309 Lynnhaven Parkway Virginia Beach, VA 23452 757-463-4306
Mr. Jim Batterson	NASA Flight Controls Engineer – retired Former Senior Advisor to the Commonwealth of Virginia for STEM initiatives High school math & physics teacher - retired	9180 Wigneil Street Suffolk, VA 23433 757-238-7025 (preferred) 757-576-3475 (cell)
Mr. Mark Clemente, NBCT	National Institute of Aerospace Educator in Residence Science teacher VBCPS	100 Exploration Way Hampton, VA 23666 757-325-6801
Mr. Larry Dart	GEICO Region 7 Senior Employment Specialist USN Retired/Military Recruiter High School CO-OP Coordinator	GEICO 1345 Perimeter Parkway Virginia Beach, VA 23454 757-222-6345
Ms. Diana Counts	Beach Municipal Federal Credit Union Vice President Marketing	Beach Municipal Federal Credit Union 4164 Virginia Beach Blvd. Virginia Beach, VA 23452 757-416-6189
Mr. Johnnie Draughon	Parent of student enrolled in the LHS Technology Academy	5332 Balfor Drive Virginia Beach, VA 23464 757-366-0051
Mr. Wayne Mantay	Robotics mentor for LHS Research Engineer DOD/NASA	911 Dare Road Yorktown, VA 23692 757-898-3789

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

STATEMENT OF ASSURANCES and Advisory Committee Agreement

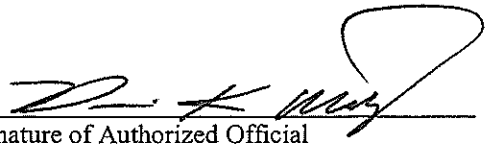
The authorized signature on this page certifies to the Virginia Department of Education that the authorized official assures that:

1. As a member of the advisory committee, I am aware that the technology Academy at Landstown High School is submitting a proposal to become a Governor's STEM Academy.

2. As a member of the advisory committee, I will:
   a. Provide input and guidance in the development of curriculum and course offering.
   b. Assist in the monitoring and assessment of the program.
   c. Provide opportunities to the students in the form of internships, mentorships, job shadowing, if appropriate.

Certification by Authorized or Institutional Official:

By signing this agreement and serving on the advisory committee, I certify that I am a willing supporter and participant in the process of establishing a Governor's STEM Academy at the Technology Academy of Landstown High School.

Dr. Brian K. Matney	Principal, Landstown High School and Technology Academy
Typed or Printed Name of Authorized Official	Title
	11/29/11
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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R. Lisette Diehl
Typed or Printed Name of Authorized Official

LHS Technology Academy Coordinator
Title

R. Lisette Diehl
Signature of Authorized Official

11/4/11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Natasha Christian, RN, BS, MS — Typed or Printed Name of Authorized Official

Assistant Principal - Science — Title

Natasha Christian — Signature of Authorized Official

11.8.11 — Date

Governor's Science, Technology, Engineering
and
Mathematics (STEM)
Academy

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Certification by Authorized or Institutional Official:

By signing this agreement and serving on the advisory committee, I certify that I am a willing supporter and participant in the process of establishing a Governor's STEM Academy at the Technology Academy of Landstown High School.

James Barger — Typed or Printed Name of Authorized Official

Pre-Engineering Teacher/Chair — Title

Signature of Authorized Official

11/4/11 — Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

STATEMENT OF ASSURANCES and Advisory Committee Agreement

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Certification by Authorized or Institutional Official:

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Ann King
Typed or Printed Name of Authorized Official

Marketing Teacher Department Chair
Title

Ann King
Signature of Authorized Official

Nov. 4, 2011
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Nancy Dawding
Typed or Printed Name of Authorized Official

Business + IT Department Chair
Title

Nancy Dawding
Signature of Authorized Official

Nov 7 '11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Ron Shaneyfelt — Typed or Printed Name of Authorized Official

Teacher (Astronomy) — Title

Ron Shaneyfelt — Signature of Authorized Official

11-4-2011 — Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Lisa Ferrew — Typed or Printed Name of Authorized Official

Computer/Math Teacher — Title

Lisa Ferrew — Signature of Authorized Official

11-9-11 — Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Lavell White
Typed or Printed Name of Authorized Official

School Guidance Counselor & Technology Academy Liaison
Title

Signature of Authorized Official

11/4/11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Linda J. Love, Ed.D. — Typed or Printed Name of Authorized Official

Instructional Specialist — Title

Signature of Authorized Official

11/12/11 — Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Rhonda S. J. Doak	Business & Information Technology Coordinator
Typed or Printed Name of Authorized Official	Title
Rhonda S. J. Doak	November 16, 2011
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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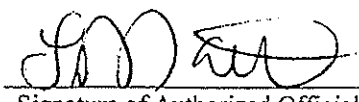
Larry Mattix	Acting Dean, CSET at NSU
Typed or Printed Name of Authorized Official	Title
	11/08/2011
Signature of Authorized Official	Date

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Michael F. Kosloski, Jr.	Asst. Professor, STEM Education and Professional Studies
Typed or Printed Name of Authorized Official	Title
Signature of Authorized Official	November 7, 2011
	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Susan N. Dozier — Typed or Printed Name of Authorized Official

Professor TCC — Title

Susan N. Dozier — Signature of Authorized Official

11/9/11 — Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Mark D Meadows	Director of Student Recruitment, VC Engineering
Typed or Printed Name of Authorized Official	Title
Richard D Meadows	11/16/2011
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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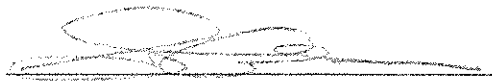
Simon Nance	Manager - Training & Development
Typed or Printed Name of Authorized Official	Title STIHL Inc.
	4 Nov '11
Signature of Authorized Official	Date

Governor's Science, Technology, Engineering
and
Mathematics (STEM)
Academy

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Certification by Authorized or Institutional Official:

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Carol Edelman
Typed or Printed Name of Authorized Official

11/10/11
Title VA FIRST FTC Team Development Coordinator

Carol Edelman
Signature of Authorized Official

11/10/11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Sally Sylvester
Typed or Printed Name of Authorized Official

FIRST Senior Mentor Virginia
Title

Sally Sylvester
Signature of Authorized Official

11/15/11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Frank Gomez
Typed or Printed Name of Authorized Official

Freshman Adm. Advisor ECPI
Title

Frank Gomez
Signature of Authorized Official

11/4/11
Date

Governor's Science, Technology, Engineering
and
Mathematics (STEM)
Academy

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Tom B. Langley
Typed or Printed Name of Authorized Official

President Langley + McDonald
Title

Tom B. Langley
Signature of Authorized Official

11/8/11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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JAMES G. BATTERSON — Typed or Printed Name of Authorized Official

NASA Aerospace Engineer (Retired) — Title

Signature of Authorized Official

NOV. 29, 2011 — Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Mark A. Clemente
Typed or Printed Name of Authorized Official

Teacher
Title

Signature of Authorized Official

11/8/11
Date

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Larry J Dart
Typed or Printed Name of Authorized Official

Senior Employment Specialist
Title Military Recruiter

Larry Dart
Signature of Authorized Official

11-4-11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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Diana Counts
Typed or Printed Name of Authorized Official

VP marketing
Title

Signature of Authorized Official

11/8/11
Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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By signing this agreement and serving on the advisory committee, I certify that I am a willing supporter and participant in the process of establishing a Governor's STEM Academy at the Technology Academy of Landstown High School.

Johnnie Drayton — Typed or Printed Name of Authorized Official

Parent — Title

Johnnie E Drayton — Signature of Authorized Official

11/4/11 — Date

Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

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WAYNE R. MANTAY
Typed or Printed Name of Authorized Official

Research Engineer DoD/NASA
Title Robotics/Mentor

Wayne R. Mantay
Signature of Authorized Official

12 Nov 2011
Date

Appendix C:

Plans of Study

for the

Governor's STEM Academy

for

Engineering, Marketing,

and

Information Technology

Studies

Science, Technology, Engineering & Mathematics

Commonwealth of Virginia Plan of Study

Student Name:
School: Landstown High School and Technology Academy
Date:

Cluster: Science, Technology, Engineering & Mathematics **Pathway:** Engineering and Technology

This Career Pathway Plan of Study can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Mathematics	Science	Social Studies/ Science	Other Required Courses Recommended Electives Learner Activities	Recommended Career and Technical Courses Source: Administrative Planning Guide http://www.cteresource.org/apg/	SAMPLE – Occupations Relating to This Pathway: http://www.doe.virginia.gov/instruction/career_technical/career_clusters/sample_plans_study/index.shtml http://www.careerclusters.org http://www.cteresource.org/cpg/
Graduation Requirements: http://www.doe.virginia.gov/instruction/graduation/index.shtml								
MIDDLE	7	1115 English 7 or 1116 Advanced English 7	3111 Math 7 or 3130 Algebra I Honors	4116 Life Science 7 or **4118 Advanced Science 7**	2356 Social Studies 7		NOTE: Use state course titles 8464 Inventions and Innovations	
	8	1123 English 8 or 1124 Advanced English 8	3112 Math 8 or **3130 Algebra I Honors** or 3143 Geometry Honors	4126 Physical Science 8 or **4210 Earth Science**	2106 Social Studies 8		8463 Technological Systems	
Career Assessment: Identify an appropriate career assessment instrument at the middle school level used to help students and their parents plan for high school: VA Wizard ☒ or other assessment (please indicate): Virginia View ability inventory								
SECONDARY	9	2130 Technology Academy Honors English	3130 Algebra I Honors or **3143 Geometry Honors** or 3135 Algebra II or 3137 Algebra II/Trig	4210 Earth Science or **4310 Biology**	2344 World History part 1 or 2211 AP Human Geography	2801 Economics & 6121 Finance Management 7300 Health & PE Level I 7405 Health & PE Level II/Drivers Education Foreign Language: 5110/5120/5130/5140 French I–IV or 5210/5220/5230/5240 German I-IV or 5310/5320/5330/5340 Latin I-IV or 5410 Russian I or 5510/5520/5530/5540 Spanish I–IV or 5850/5860/5870 Japanese I-III 9811 Physics of Tech I 9812 Physics of Tech II 8436 Engineering Drawing and Design 8416 Electronic Systems I 8412 Electronic Systems II	8435 Technical Drawing and Design	• Aeronautical/Aerospace Engineer • Agricultural Engineer/Technician • Application Engineer • Architectural Engineer • Automotive Engineer • Biomedical/Biotechnology Engineer • CAD Technician • Chemical Engineer • Civil Engineer • Communications Engineer • Computer Engineer • Computer Hardware Engineer • Computer Programmer • Construction Engineer • Drafter • Electrical/Electronic/Engineering Technician • Electrical Engineer • Geothermal Engineer • Industrial Engineer/Technician • Manufacturing Engineer/Technician • Marine Engineer • Mechanical Engineer • Metallurgist • Mining Engineer • Nuclear Engineer • Petroleum Engineer • Product/Process Engineer • Survey Technician • Systems Engineer • Transportation Engineer
	10	2135 Technology Academy Honors English	3143 Geometry Honors or 3134 Algebra Functions & Analysis or **3135 Algebra II or 3137 Algebra II/Trig**	4310 Biology or **4410 Chemistry** or 4250 Oceanography or 4260 Astronomy	2340 World History part 2 or 2399 AP European History		8433 Materials Technology	
	11	2150 Technology Academy Honors English or **1197 AP English 11 and DE 1111/1112 College Composition**	3135 Algebra II or 3137 Algebra II/Trig or 3154/sem Discrete Math or 3150/sem Trigonometry or 3190/sem Probability & Statistics or **3162 Math Analysis/Pre-Calculus** or 3185 AP Computer Science or **3192 AP Statistics**	4410 Chemistry or **4510 Physics** or 4250 Oceanography or 4260 Astronomy or 4270 AP Environmental Science or 4340 AP Biology or 4440 AP Chemistry 4541 AP Physics	2360 VA/US History or 2319 AP VA/US History		8439 Introduction to Engineering Design	
	12	2160 Technology Academy Honors English or 1196 AP English or DE 1111/1112 College Composition or **DE 1131/1125 Technical Writing & Intro to Literature**	3135 Algebra II or 3137 Algebra II/Trig or 3154/sem Discrete Math or 3150/sem Trigonometry or 3190/sem Probability & Statistics or 3162 Math Analysis/Pre-Calculus or 3185 AP Computer Science or 3192 AP Statistics or **3177 AP Calculus A/B or 3178 AP Multivariate Calculus**	4410 Chemistry or 4510 Physics or 4250 Oceanography or 4260 Astronomy or **4270 AP Environmental Science or 4340 AP Biology or 4440 AP Chemistry or 4541 AP Physics**	2440 VA/US Government or 2445 AP VA/US Government		8443 Engineering Design and Development	
High school courses in the pathway offered locally for college credit should be coded: DE (Dual Enrollment) and/or VC (Validated Credit)								

List related certifications/credentials approved by VDOE and offered locally:
http://www.cteresource.org/apg (Go to Certification – License Section)
Pre-Engineering/Engineering Technology Certification (NOCTI)
AutoCAD 2010 certification (Certiport)
Workplace Readiness Skills for the Commonwealth Certification ((CTECS)

Additional Learning Opportunities:
CTSO Organization(s): ☐ DECA ☐ FBLA ☐ FCCLA ☐ FFA ☐ FEA ☐ HOSA ☐ SkillsUSA ☒ TSA

Work-Based Learning:
☒ Career Research ☐ Cooperative Education ☒ Internship ☒ Mentorship
☒ Job Shadowing ☒ Service Learning Project ☐ Student Apprenticeship

Postsecondary: Placement Assessments such as COMPASS & SAT II | College Entrance Exams such as ACT & SAT

POSTSECONDARY

SAMPLE POSTSECONDARY PROGRAMS RELATED TO THIS CAREER PATHWAY
Individual plans must include locally agreed upon courses at the postsecondary level (See page 2)

Pathway	Associate Degree, College Certificate, or Apprenticeship	Bachelors Degree	Postgraduate Degree
	Associate of Science Degree: Engineering	Engineering Technology	

College: Tidewater Community College **School Division(s):**

Postsecondary: Placement Assessments such as COMPASS & SAT II

POSTSECONDARY - COMMUNITY COLLEGE or APPRENTICESHIP - Determined Locally

Semester	English	Mathematics	Science	Social Studies	Required Courses or Recommended Electives			
POSTSECONDARY PLAN OF STUDIES MUST INCLUDE POSTSECONDARY ACADEMIC, CTE, AND OTHER ELECTIVE COURSES APPROPRIATE FOR AN ASSOCIATE DEGREE.								
Year 1 1st Semester	DE ENG 111 College Composition	MTH 173 Calculus with Analytic Geometry I	CHM 111 College Chemistry I	Approved History Elective	EGR 120 Introduction to Engineering I		SDV 101 Orientation to Engineering and Technologies	
Year 1 2nd Semester	ENG 131 Technical Report Writing I	MTH 174 Calculus with Analytic Geometry II	CHM 112 College Chemistry II		EGR 110 Engineering Graphics	Approved Engineering Elective for intended transfer program		
Year 2 1st Semester		MTH 279 Ordinary Differential Equations	PHY 241 University Physics I	Approved Social Science Elective	EGR 125 Introduction to Engineering Methods (C++)	Approved Engineering Elective for intended transfer program		
Year 2 2nd Semester		MTH Vector Calculus	PHY 242 University Physics II			Approved Engineering Elective for intended transfer program	2 Approved Humanities Electives	Health/Physical Education Elective

College courses offered locally in the high school for college credit should be coded: DE (Dual Enrollment) and/or VC (Validated Credit)

Related Industry Certifications Available:	Additional Suggested Learning Opportunities: **Work-Based Learning:** ☐ Cooperative Education ☐ Internship ☐ Mentorship ☐ Job Shadowing ☐ Service Learning Project ☐ Registered Apprenticeship

UNIVERSITY

University/College: Old Dominion University
Degree or Major: Bachelor of Science in Engineering Technology
Number of Articulated CC Credits: 71 minimum

Notes:

Commonwealth of Virginia Plan of Study

Student Name:
School: Landstown High School and Technology Academy
Date:

Cluster: Marketing **Pathway:** Professional Sales

This Career Pathway Plan of Study can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Mathematics	Science	Social Studies/ Science	Other Required Courses Recommended Electives Learner Activities	Recommended Career and Technical Courses Source: Administrative Planning Guide http://www.cteresource.org/apg/	SAMPLE – Occupations Relating to This Pathway: http://www.doe.virginia.gov/instruction/career_technical/career_clusters/sample_plans_study/index.shtml http://www.careerclusters.org http://www.cteresource.org/cpg/
Graduation Requirements: http://www.doe.virginia.gov/instruction/graduation/index.shtml								
MIDDLE	7	1115 English 7 or 1116 Advanced English 7	3111 Math 7 or 3230 Algebra I Honors	4116 Life Science 7 or **4118 Advanced Science 7**	2356 Social Studies 7		NOTE: Use state course titles	
	8	1123 English 8 or 1124 Advanced English 8	3112 Math 8 or **3130 Algebra I Honors** or 3143 Geometry Honors	4126 Physical Science 8 or **4210 Earth Science**	2106 Social Studies 8			
Career Assessment: Identify an appropriate career assessment instrument at the middle school level used to help students and their parents plan for high school: VA Wizard ☒ or other assessment (please indicate): Virginia View ability inventory								
SECONDARY	9	2130 Technology Academy Honors English	3130 Algebra I Honors or **3143 Geometry Honors** or 3135 Algebra II or 3137 Algebra II/Trig	4210 Earth Science or **4310 Biology**	2344 World History part 1 or 2211 AP Human Geography	2801 Economics & 6121 Finance Management 7300 Health & PE Level I 7405 Health & PE Level II/Drivers Education Foreign Language: 5110/5120/5130/5140 French I–IV or 5210/5220/5230/5240 German I-IV or 5310/5320/5330/5340 Latin I-IV or 5410 Russian I or 5510/5520/5530/5540 Spanish I–IV or 5850/5860/5870 Japanese I-III 8140 Fashion Marketing 8135 Global Marketing and Commerce	9093 Entrepreneurship	Account Executive Administrative Support Representative Agent Broker Business Development Manager Channel Sales Manager Client Relationship Manager Customer Service Representative Field Marking Representative Field Representative Inbound Call Manager Industrial Sales Representative Key Account Manager Manufacturer's Representative National Account Manager Outside Sales Representative Regional Sales Manager Retail Sales Specialist Sales Engineer Sales Executive Sales/Marketing Associate Solutions Advisor Technical Sales Specialist Telemarketer Vice President of Sales
	10	2135 Technology Academy Honors English	3143 Geometry Honors or 3134 Algebra Functions & Data Analysis or **3135 Algebra II** or **3137 Algebra II/Trig**	4310 Biology or **4410 Chemistry** or 4250 Oceanography or 4260 Astronomy	2340 World History part 2 or 2399 AP European History		8125 Internet Marketing	
	11	2150 Technology Academy Honors English or **1197 AP English 11 and DE 1111/1112 College Composition**	3135 Algebra II or 3137 Algebra II/Trig or **3154/sem Discrete Math or 3150/sem Trigonometry or 3190/sem Probability & Statistics or 3162 Math Analysis/Pre Calculus** or 3185 AP Computer Science or 3192 AP Statistics	4410 Chemistry or **4510 Physics** or 4250 Oceanography or 4260 Astronomy or 4270 AP Environmental Science or 4340 AP Biology or 4440 AP Chemistry 4541 AP Physics	2360 VA/US History or 2319 AP VA/US History		8120 Marketing	
	12	2160 Technology Academy Honors English or 1196 AP English or DE 1111/1112 College Composition or **DE 1131/1125 Technical Writing & Intro to Literature**	3135 Algebra II or 3137 Algebra II/Trig or 3154/sem Discrete Math or 3150/sem Trigonometry or 3190/sem Probability & Statistics or **3162 Math Analysis/Pre Calculus** or 3185 AP Computer Science or **3192 AP Statistics** or **3177 AP Calculus A/B** or **3178 AP Multivariate Calculus**	4410 Chemistry or **4510 Physics** or 4250 Oceanography or 4260 Astronomy or **4270 AP Environmental Science or 4340 AP Biology or 4440 AP Chemistry or 4541 AP Physics**	2440 VA/US Government or 2445 AP VA/US Government		8130 Advanced Marketing	
High school courses in the pathway offered locally for college credit should be coded: DE (Dual Enrollment) and/or VC (Validated Credit)								

List related certifications/credentials approved by VDOE and offered locally:	Additional Learning Opportunities:
http://www.cteresource.org/apg (Go to Certification – License Section) Workplace Readiness Skills for the Commonwealth Certification (CTECS) Customer Service Certification (NRFF) Sales Certification (NRFF)	CTSO Organization(s): ☒ DECA ☐ FBLA ☐ FCCLA ☐ FFA ☐ FEA ☐ HOSA ☐ SkillsUSA ☐ TSA **Work-Based Learning:** ☒ Career Research ☒ Cooperative Education ☒ Internship ☒ Mentorship ☒ Job Shadowing ☒ Service Learning Project ☐ Student Apprenticeship
Postsecondary: Placement Assessments such as COMPASS & SAT II	College Entrance Exams such as ACT & SAT

POSTSECONDARY

SAMPLE POSTSECONDARY PROGRAMS RELATED TO THIS CAREER PATHWAY
Individual plans must include locally agreed upon courses at the postsecondary level (See page 2)

Pathway	Associate Degree, College Certificate, or Apprenticeship	Bachelors Degree	Postgraduate Degree
	Associate of Science Degree – Business Administration	Business Administration - Marketing	

College: Tidewater Community College **School Division(s):**

Postsecondary: Placement Assessments such as COMPASS & SAT II

POSTSECONDARY - COMMUNITY COLLEGE or APPRENTICESHIP - Determined Locally

Semester	English	Mathematics	Science	Social Studies	Required Courses or Recommended Electives			
POSTSECONDARY PLAN OF STUDIES MUST INCLUDE POSTSECONDARY ACADEMIC, CTE, AND OTHER ELECTIVE COURSES APPROPRIATE FOR AN ASSOCIATE DEGREE.								
Year 1 1st Semester	DE ENG 111 College Composition I	MTH 163 Pre-calculus		Approved History Elective		Approved Elective for intended transfer program	Health/Physical Education Elective	SDV 100 College Success Skills
Year 1 2nd Semester	DE ENG 112 College Composition II	MTH 270 Applied Calculus		ECO 201 Principles of Macroeconomics	CST 100 Principles of Public Speaking	Approved Humanities elective	ITE 115 Introduction to Computer Applications and Concepts	
Year 2 1st Semester			Approved Science with Lab Elective	ECO 202 Principles of Microeconomics	ACC 211 Principles of Accounting I	BUS 280 Introduction to International Business or ECO 210	Approved Elective for intended transfer program	
Year 2 2nd Semester		BUS 216 Probability and Statistics for Business and Economics	Approved Science with Lab Elective		ACC 212 Principles of Accounting II	Approved Humanities elective	Approved Elective for intended transfer program	
College courses offered locally in the high school for college credit should be coded: DE (Dual Enrollment) and/or VC (Validated Credit)								

Related Industry Certifications Available:	Additional Suggested Learning Opportunities:
	Work-Based Learning: ☐ Cooperative Education ☐ Internship ☐ Mentorship ☐ Job Shadowing ☐ Service Learning Project ☐ Registered Apprenticeship

UNIVERSITY

University/College: Old Dominion University
Degree or Major: Bachelor of Science in Business Administration - Marketing
Number of Articulated CC Credits: 64 minimum

Notes:

Rev: 5/18/11

Commonwealth of Virginia Plan of Study

Student Name:
School: Landstown High School and Technology Academy
Date:

Cluster: Information Technology **Pathway:** Web and Digital Communications

This Career Pathway Plan of Study can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Mathematics	Science	Social Studies/ Science	Other Required Courses Recommended Electives Learner Activities	Recommended Career and Technical Courses Source: Administrative Planning Guide http://www.cteresource.org/apg/	SAMPLE – Occupations Relating to This Pathway: http://www.doe.virginia.gov/instruction/career_technical/career_clusters/sample_plans_study/index.shtml http://www.careerclusters.org http://www.cteresource.org/cpg/
Graduation Requirements: http://www.doe.virginia.gov/instruction/graduation/index.shtml								
MIDDLE	7	1115 English 7 or 1116 Advanced English 7	3111 Math 7 or 3130 Algebra I Honors	4116 Life Science 7 or **4118 Advanced Science 7**	2356 Social Studies 7		**NOTE: Use state course titles** 6609/9 Computer Solutions 6609/18 Computer Solutions	
	8	1123 English 8 or 1124 Advanced English 8	3112 Math 8 or **3130 Algebra I Honors** or 3143 Geometry Honors	4126 Physical Science 8 or **4210 Earth Science**	2106 Social Studies 8		6151 Keyboarding 6153 Keyboarding Applications	
Career Assessment: Identify an appropriate career assessment instrument at the middle school level used to help students and their parents plan for high school: VA Wizard ☒ or other assessment (please indicate): Virginia View ability inventory								
SECONDARY	9	2130 Technology Academy Honors English	3130 Algebra I Honors or **3143 Geometry Honors** or 3135 Algebra II or 3137 Algebra II/Trig	4210 Earth Science or **4310 Biology**	2344 World History part 1 or 2211 AP Human Geography	2801 Economics & 6121 Finance Management 7300 Health & PE Level I 7405 Health & PE Level II/Drivers Education Foreign Language: 5110/5120/5130 French I–III or 5210/5220/5230 German I-III or 5310/5320/5330 Latin I-III or 5410 Russian I or 5510/5520/5530 Spanish I–IV or 5850/5860/5870 Japanese I-III 6635 Computer Information Systems (COE) 6625 Advanced Computer Information Systems (COE) 6500 Web-based Development and Administration	6670 Information Technology Fundamentals	- Animator - Digital Media Designer - Graphic Designer - Instructional Technologist - Media Specialist - Multimedia Author - Multimedia Developer - Multimedia Specialist - Producer - Production Assistant - Streaming Media Specialist - Virtual Reality Specialist - Web Administrator - Web Architect/Designer - Web Designer - Web Developer - Web Producer - Webmaster
	10	2135 Technology Academy Honors English	3143 Geometry Honors or 3134 Algebra Functions & Data Analysis or **3135 Algebra II or** **3137 Algebra II/Trig**	4310 Biology or **4410 Chemistry** or 4250 Oceanography or 4260 Astronomy	2340 World History part 2 or 2399 AP European History		6630 Design, Multimedia and Web Technologies	
	11	2150 Technology Academy Honors English or **1197 AP English 11 and DE 1111/1112 College Composition**	3135 Algebra II or 3137 Algebra II/Trig or 3154 Discrete Math or 3150 Trigonometry or 3190 Probability & Statistics or **3162 Math Analysis/Pre-Calculus** or **3185 AP Computer Science** or 3192 AP Statistics	4410 Chemistry or **4510 Physics** or 4250 Oceanography or 4260 Astronomy or 4270 AP Environmental Science or 4340 AP Biology or 4440 AP Chemistry 4541 AP Physics	2360 VA/US History or 2319 AP VA/US History		6660 Database Design and Management (Oracle)	
	12	2160 Technology Academy Honors English or 1196 AP English or DE 1111/1112 College Composition or **DE 1131/1125 Technical Writing & Intro to Literature**	3135 Algebra II or 3137 Algebra II/Trig or 3154 Discrete Math or 3150 Trigonometry or 3190 Probability & Statistics or 3162 Math Analysis/Pre-Calculus or 3185 AP Computer Science or **3192 AP Statistics or** **3177 AP Calculus A/B** or **3178 AP Multivariate Calculus**	4410 Chemistry or 4510 Physics or 4250 Oceanography or 4260 Astronomy or **4270 AP Environmental Science or** **4340 AP Biology or** **4440 AP Chemistry or** **4541 AP Physics**	2440 VA/US Government or 2445 AP VA/US Government		6662 Database Design and Management with PL/SQL (Oracle)	
High school courses in the pathway offered locally for college credit should be coded: DE (Dual Enrollment) and/or VC (Validated Credit)								

List related certifications/credentials approved by VDOE and offered locally:
http://www.cteresource.org/apg (Go to Certification – License Section)
IC3 Certification
Adobe Certified Associate
Oracle Certifications (Oracle Corporation):
Introduction to SQL certification
Introduction to PL/SQL certification
Workplace Readiness Skills for the Commonwealth Certification(CTECS)
Microsoft Office Specialist
WISE Financial Literacy Certification (WISE)
Cisco CCNA Academy I and II Certifications (Cisco)

Additional Learning Opportunities:
CTSO Organization(s): ☐ DECA ☒ FBLA ☐ FCCLA ☐ FFA ☐ FEA ☐ HOSA ☐ SkillsUSA ☐ TSA

Work-Based Learning:
☒ Career Research ☒ Cooperative Education ☒ Internship ☒ Mentorship ☒ Job Shadowing ☒ Service Learning Project ☐ Student Apprenticeship

Postsecondary: Placement Assessments such as COMPASS & SAT II | College Entrance Exams such as ACT & SAT

POSTSECONDARY

SAMPLE POSTSECONDARY PROGRAMS RELATED TO THIS CAREER PATHWAY
Individual plans must include locally agreed upon courses at the postsecondary level (See page 2)

Pathway	Associate Degree, College Certificate, or Apprenticeship	Bachelors Degree	Postgraduate Degree
Web & Digital Communications	Associate of Science Degree: Science Specialization: Computer Science	Business Administration – Information Technology	

College: Tidewater Community College **School Division(s):**

Postsecondary: Placement Assessments such as COMPASS & SAT II

POSTSECONDARY - COMMUNITY COLLEGE or APPRENTICESHIP - Determined Locally

Semester	English	Mathematics	Science	Social Studies	Required Courses or Recommended Electives			
POSTSECONDARY PLAN OF STUDIES MUST INCLUDE POSTSECONDARY ACADEMIC, CTE, AND OTHER ELECTIVE COURSES APPROPRIATE FOR AN ASSOCIATE DEGREE.								
Year 1 1st Semester	DE ENG 111 College Composition I	MTH 173 Calculus with Analytic Geometry I		HIS 101 History of Western Civilization I or other approved HIS elective	CSC 110 Introduction to Computing			SDV 100 College Success Skills
Year 1 2nd Semester	DE ENG 112 College Composition II	MTH 174 Calculus with Analytic Geometry I74		HIS 102 History of Western Civilization II or other approved HIS elective	CSC 201 Computer Science I			
Year 2 1st Semester			Approved Science with Lab Elective	Approved Social Science Elective	CSC 205 Computer Organization	CSC 210 Programming with C++		Health/Physical Education Elective
Year 2 2nd Semester			Approved Science with Lab Elective		CSC Advanced Computer Organization	Approved Elective for intended transfer program	2 Approved Humanities Elective	

College courses offered locally in the high school for college credit should be coded: DE (Dual Enrollment) and/or VC (Validated Credit)

Related Industry Certifications Available:	Additional Suggested Learning Opportunities: **Work-Based Learning:** ☐ Cooperative Education ☐ Internship ☐ Mentorship ☐ Job Shadowing ☐ Service Learning Project ☐ Registered Apprenticeship

UNIVERSITY

University/College: Old Dominion University
Degree or Major: Bachelor Of Science in Business Administration – Information Technology
Number of Articulated CC Credits: 60 minimum

Notes:

Appendix D:

Student

Application

VIRGINIA BEACH CITY PUBLIC SCHOOLS

A H E A D O F T H E C U R V E

Department of Curriculum and Instruction

Office of Instructional Services and Academy Programs

ACADEMY PROGRAMS
ADVANCED ACADEMIC PROGRAMS
APPLICATION
Student Data Sheet

Due Wednesday, February 1, 2012 to the student's school Guidance Office

Late, faxed and emailed copies as well as incomplete applications will not be processed.

PLEASE TYPE OR PRINT.

Check each program to which you wish to apply.

Academy Programs

Global Studies and World Languages Academy (Essay)	Health Sciences Academy (Essay)	Legal Studies Academy (Essay)	Technology Academy (Electronic Portfolio/Essay)	Visual and Performing Arts Academy (Auditions)
☐	☐	☐	☐	☐

Advanced Academic Programs

International Baccalaureate Program (Admissions Exam)	Mathematics and Science Academy (Admissions Exam)
☐	☐

Name _____
(Last) (First) (Middle)

Home Address _____
(Street)

_____
(City) (State) (Zip Code)

E-mail Address _____

Current Grade Level _____ Date of Birth_____ Gender _____

Student Number _____ Home Phone # _____

Mother's/Guardian's Name _____ Work Phone # _____

Cell Phone # _____

Father's/Guardian's Name_____ Work Phone # _____

Cell Phone # _____

Current School _____ Zoned High School _____

VIRGINIA BEACH CITY PUBLIC SCHOOLS
AHEAD OF THE CURVE

High School Academy Programs and Advanced Academic Programs Application Process

Students interested in attending one of the academy programs and/or advanced academic programs are required to submit an application. All required components of the student application, including the signed student forms, parent forms, teacher recommendations, and items outlined below for each program, must be turned into the school guidance counselor by the deadline, February 1, 2012. Original applications must be submitted. **Late, faxed and emailed copies as well as incomplete applications will not be processed.** During the selection process, each program will establish a waiting list of students in the event that a student who is offered a position chooses not to accept or transfers prior to the start of school. The waiting list will remain active only until the last business day prior to the first day of school. Students must re-apply for consideration for the next school year. Each program has specific application requirements. The required application component(s) for each program is listed below:

Academy Programs

Global Studies and World Languages Academy	• Submit an essay. *Describe your interest in a specific world culture or global issue. Explain how it impacts your life and the lives of others.*
Health Sciences Academy	• Submit an essay. *Why do you want to be a medical professional and how do you see yourself in a future medical practice?*
Legal Studies Academy	• Submit an essay. *In your opinion, what is the purpose of the legal system? Describe how attending the Legal Studies Academy will enhance your knowledge of the legal system.*
Technology Academy	• Submit an electronic portfolio. See attached list or visit the Landstown High School Web site at www.landstownhs.vbschools.com for electronic portfolio requirements. • Write a thoughtful essay of approximately 350 words that expresses *why you are applying to the Technology Academy and what you hope to gain from this experience. The essay should include your thoughts and reasons for which of the three areas of concentration you wish to focus your studies: entrepreneurship, information technology or pre-engineering.* Essays should be original, creative and grammatically correct.
Visual and Performing Arts Academy	• An audition will be scheduled.

Advanced Academic Programs

International Baccalaureate Program	• Admissions Exam
Mathematics and Science Academy	• Admissions Exam • Completion of Algebra I in middle school

For Students Not Currently Enrolled in Virginia Beach City Public Schools

Students not currently enrolled in Virginia Beach City Public Schools must mail the application directly to each academy program and/or advanced academic program coordinator to which they are applying. All applications must be postmarked no later than February 1, 2012. ***Late, faxed and emailed copies as well as incomplete applications will not be processed.*** *The standard application and recommendation forms may be photocopied if a student applies to more than one program.*

Academy Programs

Global Studies and World Languages Academy
Tallwood High School
Attn: Ms. Rebecca Gurley
1668 Kempsville Road
Virginia Beach, VA 23464

Health Sciences Academy
Bayside High School
Attn: Mr. Brian Jones
4960 Haygood Road
Virginia Beach, VA 23452

Technology Academy
Landstown High School
Attn: Ms. Lisette Diehl
2001 Concert Drive
Virginia Beach, VA 23456

Visual and Performing Arts Academy
Salem High School
Attn: Ms. Eva Melatti
1993 Sun Devil Drive
Virginia Beach, VA 23464

Legal Studies Academy
First Colonial High School
Attn: Ms. Paige Scherr
1272 Mill Dam Road
Virginia Beach, VA 23454

Advanced Academic Programs

International Baccalaureate Program
Princess Anne High School
Attn: Ms. Helen Cox
4400 Virginia Beach Blvd.
Virginia Beach, VA 23462

Mathematics and Science Academy
Ocean Lakes High School
Attn: Dr. Ann Zingraff-Newton
885 Schumann Drive
Virginia Beach, VA 23454

VIRGINIA BEACH CITY PUBLIC SCHOOLS
Academy Programs

Technology Academy
Electronic Portfolio Requirements

Save work to a recordable CD (CD-R) using the following guidelines.

- Create a folder with your first and last name.
- Within this folder, save each completed activity in a separate folder. Do not save work as shortcuts or scraps.
- Complete three of the twelve activities.
- Include the CD with your application.
- Do not save your essay response on the CD. **Print a hard copy to include with your application.**

Examples of Student Products

Read all directions carefully and fully. Select 3 projects from the list of 12 to complete.

1. Create a 3-minute, self-running **multimedia presentation** that markets either tourism for an area within the state of Virginia or a college athletic program. Self-running describes a program that will run on its own.

   Suggested Software: *Microsoft PowerPoint or Microsoft Movie Maker*

2. Create a **newsletter** (no more than four pages) on international issues. Integration of proper grammar and formal diction are expected to be evident in the product. No copied or pasted content accepted and the product must be the student's original work.

   Suggested Software: Microsoft Publisher or Microsoft Word

3. Create a **website** for your own school that can be viewed with either the Netscape or Internet Explorer. There should be a Home Page with four additional linked pages. Copies of the school's existing web page will not be accepted.

   Suggested Software: *Netscape Composer, Dream Weaver, HTML or XHTML code.*

4. Create a **technical guide** (pamphlet, brochure, or multimedia presentation) that explains to novice users how to analyze and solve simple hardware and software problems. Consider problems such as "a job won't print" or "the computer won't turn on."

   Suggested Software: *Microsoft PowerPoint, Microsoft Publisher,* or *Microsoft Word*

5. Create an original professional grade **resume** that would reflect the accomplishments of the candidate.

   Suggested Software: *Microsoft Word*

6. Create a floor plan **design** of a business office of 12-15 employees.

   Any entry not saved in the suggested software format will not be evaluated.
   Suggested Software: *AutoCAD* or any program that will save in *.bmp, *.jpg, *.gif, *.pdf, or *.wmf format

7. Create a **working database** for a business such that five employees can enter sales from four products sold (video games, CDs, books, and DVDs). Employees should also be able to track sales by product type or by employee. Enter sufficient data so that the database can be queried.

   Suggested Software: *Microsoft Access*

8. Create a **project proposal** that details what is necessary to establish a networked environment for every room in a house. Consider at least one file server and two printers in your proposal.

   Any entry not saved in the suggested software format will not be evaluated.
   Suggested Software: *Microsoft Word*
   If including floor plans, *AutoCAD* or any program that will save in *.bmp, *.jpg, *.gif, *.pdf, or *.wmf format.

9. Create a **logo**. The Technology Academy Student Ambassadors who represent the Academy Student Leadership Team at Landstown High School need a logo to be used on letterhead, T-shirts, and business cards.

   Suggested Software: *Microsoft Word, Microsoft Publisher or Adobe Fireworks*. If you are using another program the file should be a *.jpg, *.gif or *.png.

10. Create a **brochure** to introduce yourself. Include your interests, hobbies, career goals, awards and community involvement.

    Suggested Software: *Microsoft Publisher or Microsoft Word*

11. Create a collection of **Web pages** for a business that you would like to open. The business may be an existing or imagined business. The pages should be able to be viewed in Internet Explorer or Mozilla Foxfire browsers, and independent of the WWW. There should be a minimum of five separate linked pages. Copies of a business's existing web pages will not be accepted.

    Suggested Software: *Dream Weaver, Microsoft Publisher, Microsoft Word,* or any other program that will save in *.html format.

12. Using an *AutoCAD* program, design and describe in detail a **complex machine** (real or fictional). This must include three (3) main dimensioned orthographic views (front, top, and right side view) and the description of the complexity of the machine or part/subsystem of the machine.

    Suggested Software: AutoCAD
    The file must be saved as a CAD file in a *.dwg, *.dwt, *.stl, or other picture format screenshot such as *.bmp, *.jpg, *.gif, or *.tif.

Student's Name: _____

Career Interests: _____

In the space provided, please describe your goals for attending an Academy or Advanced Academic Program (for all applicants).

In the space provided, list the **Extracurricular Activities** in which you participate (school and/or community) (for all applicants).

In the space provided, list the **Awards/Honors** you have received in school (for all applicants).

An appeals process is in place for each program. Please contact the program coordinator for details.

VIRGINIA BEACH CITY PUBLIC SCHOOLS
AHEAD OF THE CURVE

ADMISSIONS AGREEMENT

The Virginia Beach City Public Schools Academy Programs and Advanced Academic Programs offer a broad variety of specialized curricula for highly interested and motivated students. For students to be successful in these programs, the student must be a consistent, dedicated learner. Therefore, Virginia Beach City Public Schools require that students and parents make the following commitment.

I agree to the following terms and conditions for participating in a Virginia Beach City Public Schools Academy Program or Advanced Academic Program. I will

1. follow the rules of the Academy or Advanced Academic Program as well as those rules outlined in the *Student Handbook* and *Code of Student Conduct.*
2. actively participate in each class by being prepared, listening attentively, offering relevant comments, posing insightful questions, taking notes, and doing any other activities necessary to meet the expectations set forth for each class.
3. submit quality work in a timely fashion seeking additional assistance from my instructors as needed.
4. manifest the highest degree of academic integrity. Incidents of cheating may be grounds for immediate removal from the program.
5. maintain an excellent attendance record, scheduling appointments or vacations at times that do not conflict with classes.
6. fulfill all academy or advanced academic program requirements.

I understand that if I do not meet the standards or follow the rules of an academy program or advanced academic program, I may be asked to withdraw from the program to enroll in a course of study which better meets my needs. If I am asked to withdraw from an academy or advanced academic program, by the program coordinator, I understand that I may appeal that decision to the building principal whose ruling is the final authority. **I also understand that if I leave the academy program or advanced academic program, I must return to my zoned school and, according to Virginia High School League rules, I would not be eligible to participate in VHSL activities for 365 days unless I was granted a waiver under VHSL rule 28-6-2(14).**

_____ _____

Student's Signature Date

I hereby grant permission and consent for my son/daughter to enroll in a Virginia Beach City Public Schools academy program or advanced academic program and agree to all terms listed above. Finally, I will support my child's academic growth and encourage development of independent study skills. I understand that my son/daughter may be withdrawn from an academy or advanced academic program by the program coordinator and/or the principal if he/she does not fulfill the terms of this agreement.

_____ _____

Parent's/Guardian's Signature Date

VIRGINIA BEACH CITY PUBLIC SCHOOLS

A H E A D O F T H E C U R V E

PARENT RECOMMENDATION FORM

Student's Name: _____

Counselor: _____ School: _____

Directions to Student: Complete the information above and have a parent or guardian complete this form. Please check all of the programs to which you are applying. You may check more than one.

☐ Global Studies and World Languages Academy at Tallwood HS

☐ Health Sciences Academy at Bayside HS

☐ International Baccalaureate Program at Princess Anne HS

☐ Legal Studies Academy at First Colonial HS

☐ Mathematics and Science Academy at Ocean Lakes HS

☐ Technology Academy at Landstown HS

☐ Visual and Performing Arts Academy at Salem HS

Directions to Parent: Your child is applying for admission to a Virginia Beach City Public Schools academy program or advanced academic program. Please mark the box below that best represents your assessment of your child.

	Almost Always	Often	Occasionally	Rarely	Never
Ease of Learning – Enjoys the challenge of problems, assignments, and issues. Learns quickly.	☐	☐	☐	☐	☐
Adaptability – Approaches ideas and problems from a number of directions. Finds alternative means of solving problems. Thinks about ideas in new ways.	☐	☐	☐	☐	☐
Initiative and Enthusiasm – Is a highly motivated, independent worker. Seeks additional tasks; is intellectually curious; and stays actively engaged in activities.	☐	☐	☐	☐	☐
Persistence – Stays with tasks; relates progress on tasks to accomplishment of larger goals.	☐	☐	☐	☐	☐
Reliability and Integrity – Is scrupulous and punctual in fulfilling obligations; readily takes responsibility.	☐	☐	☐	☐	☐
Reasoning – Uses logical, analytical reasoning and/or creative, divergent thinking to consider ideas or solve problems. (Originality and elaboration of thinking.)	☐	☐	☐	☐	☐
Communications – Communicates effectively.	☐	☐	☐	☐	☐
Organization – Manages time, resources and materials; meets deadlines; divides tasks into subtasks.	☐	☐	☐	☐	☐
Leadership Qualities – Shows respect and tolerance of others' views. Is willing to accept the ideas of others and contributes to the group process. Influences others in a positive manner.	☐	☐	☐	☐	☐
Success - Displays the ability to succeed in a challenging program.	☐	☐	☐	☐	☐

Student's Name: _____

Counselor: _____ School: _____

Please provide any comments that might assist us in determining your child's potential to succeed in a rigorous academic program.

_____ _____ _____

Parent's Name (Printed) Parent's Signature Date

Thank you for completing this form. Your input is valued.
Please return this form to the guidance counselor indicated on the previous page.
Due Wednesday, February 1, 2012

VIRGINIA BEACH CITY PUBLIC SCHOOLS

AHEAD OF THE CURVE

TEACHER RECOMMENDATION FORM

Student's Name: _____

Teacher: _____ Subject: _____

Counselor: _____ School: _____

Directions to Student: Complete the information above and give a separate form to the following **four** teachers for recommendations: your **current** English teacher, math teacher, science teacher, and social studies teacher.

Please check below all of the programs to which you are applying. **You may check more than one.**

☐ Global Studies and World Languages Academy At Tallwood HS

☐ Health Sciences Academy at Bayside HS

☐ International Baccalaureate Program at Princess Anne HS

☐ Legal Studies Academy at First Colonial HS

☐ Mathematics and Science Academy at Ocean Lakes HS

☐ Technology Academy at Landstown HS

☐ Visual and Performing Arts Academy at Salem HS

Directions to Teacher: The student listed above is applying for admission to a Virginia Beach City Public Schools academy program or advanced academic program. Please mark the box below that best represents your assessment of this student.

	Almost Always	Often	Occasionally	Rarely	Never
Ease of Learning – Enjoys the challenge of problems, assignments, and issues. Learns quickly.	☐	☐	☐	☐	☐
Adaptability – Approaches ideas and problems from a number of directions. Finds alternative means of solving problems. Thinks about ideas in new ways.	☐	☐	☐	☐	☐
Initiative and Enthusiasm – Is a highly motivated, independent worker. Seeks additional tasks; is intellectually curious; and stays actively engaged in activities.	☐	☐	☐	☐	☐
Persistence – Stays with tasks; relates progress on tasks to accomplishment of larger goals.	☐	☐	☐	☐	☐
Reliability and Integrity – Is scrupulous and punctual in fulfilling obligations; readily takes responsibility.	☐	☐	☐	☐	☐
Reasoning – Uses logical, analytical reasoning and/or creative, divergent thinking to consider ideas or solve problems. (Originality and elaboration of thinking.)	☐	☐	☐	☐	☐
Communications – Communicates effectively.	☐	☐	☐	☐	☐
Organization – Manages time, resources and materials; meets deadlines; divides tasks into subtasks.	☐	☐	☐	☐	☐
Leadership Qualities – Shows respect and tolerance of other's views. Is willing to accept the ideas of others and contributes to the group process. Influences others in a positive manner.	☐	☐	☐	☐	☐
Success - Displays the ability to succeed in a challenging program.	☐	☐	☐	☐	☐

OVER

Student's Name: _____

Counselor: _____ School: _____

Please provide any comments that might assist us in determining this student's potential to succeed in a rigorous academic program. We are interested in strong academic students who are highly motivated and exhibit mature decision-making skills.

Teacher's Name (Printed) _____ Teacher's Signature _____

Date _____ Subject _____

Thank you for completing this form. Your input is valued.
Please return this form to the guidance counselor indicated on the previous page.

Due Wednesday, February 1, 2012

VIRGINIA BEACH CITY PUBLIC SCHOOLS

A H E A D O F T H E C U R V E

COUNSELOR'S FORM

Directions to the Student: Please fill in the information requested below and give this form to your guidance counselor by **Wednesday, February 1, 2012,** to complete and forward to the following program(s). In the first row of boxes, check all programs to which you wish to apply. In the second row of boxes, rank your preferences of the programs checked beginning with 1 for the program you are most interested in attending.

Directions to the Guidance Counselor: Complete this application per the checklist below, make copies if necessary, and forward the entire packet to the coordinators of the programs indicated by the applicant. ***Incomplete applications cannot be processed and therefore should not be submitted to the coordinator(s).*** **Parents and students should be notified by the guidance counselor that their application will not be processed.**

Academy Programs					Advanced Academic Programs	
Global Studies and World Languages Academy	Health Sciences Academy	Legal Studies Academy	Technology Academy	Visual and Performing Arts Academy	International Baccalaureate Program	Mathematics and Science Academy
☐	☐	☐	☐	☐	☐	☐
Indicate preferences with 1 being the program you are most interested in attending below.						
☐	☐	☐	☐	☐	☐	☐

Student's Name: ______________________ Grade Level: ______________

Current School: ____

➢➢➢

INFORMATION BELOW TO BE COMPLETED BY THE GUIDANCE COUNSELOR

Please write on the back of this form any comments you may wish to share about this student.

Application Checklist (Please ensure all applications are submitted to the coordinator in this order.)

☐ 1. Student Data Sheet (Pages 1 & 2)
☐ 2. Admissions Agreement (Page 3)
☐ 3. Parent's Recommendation Form (Pages 4 & 5)
☐ 4. Teacher's Recommendation Form #1 (Pages 6 & 7)
☐ 5. Teacher's Recommendation Form #2 (Pages 8 & 9)
☐ 6. Teacher's Recommendation Form #3 (Pages 10 & 11)
☐ 7. Teacher's Recommendation Form #4 (Pages 12 & 13)
☐ 8. Visual or Performing Arts Teacher Recommendation and Audition Selection (Pages 14 – 16)
☐ 9. Copy of Standardized Test Scores
☐ 10. Middle School Report Card and/or transcript, including grades through current 1st semester
☐ 11. Visual and Performing Arts Academy Audition Selection Form (Page 16)
☐ 12. Counselor's Form (Page 17)
☐ 13. Essay as appropriate

Counselor's signature ______________________ Date ______________

Thank you for assisting in the completion of this student's application packet.

Appendix E:

Dual Enrollment

Articulation

Agreement

Dual Enrollment Contract

OCT 26 2010 Director's Office

BETWEEN TIDEWATER COMMUNITY COLLEGE AND VIRGINIA BEACH CITY PUBLIC SCHOOLS

The purpose of this agreement is to set out the terms and conditions upon which courses will be offered under the "Virginia Plan for Dual Enrollment Between Virginia Public Schools and Community Colleges" established by the Secretary of Education, the VCCS Chancellor, and the Superintendent of Public Instruction in January 2005. The purpose of this offering is to allow high school students to take college-level courses and receive both college credit and high school credit towards graduation.

Each party does hereby agree to the following:

1. Under this agreement, Tidewater Community College, (herein after "the College"), will make available college-level courses to students of Virginia Beach Public Schools System for the September 2010 – June 2012 academic years.

   The courses to be offered will be established by mutual agreement of both parties for the fall and spring semesters. A list of courses can be found as Attachment 1, and are hereby incorporated into this agreement.

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

2. Tuition and Fees

   Pursuant to the Virginia Plan for Dual Enrollment, schools and colleges are encouraged to provide high school students the opportunity for dual enrollment at no cost to them or their families. The School will pay on behalf of the student or students, or the student will pay the College, the mandatory tuition and any fees established by the State Board for Community Colleges at the rate then in effect at the time the classes begin. Where the School agrees to pay the tuition and fees, the College will bill the School on a semester basis. If the parties agree the students are responsible for such payments, the College will bill the students directly for them.

3. Textbooks

   The College reserves the right to determine the textbooks used in dual enrollment courses. The provision of all dual enrollment course textbooks is the responsibility of the Virginia Beach City Public Schools. Required textbooks will be available for purchase from the college's bookstore and the high school will provide textbooks to students.

C & I Assistant

AUG 25 2010

AUG 13 2010

4. Payment for Other Services

Fees and reimbursement for other costs and services will be determined by mutual consent of the Virginia Beach Public Schools System and the College per Attachment 2, which is incorporated herein and made a part of this Agreement.

5. Faculty

a. Selection

(1) Authority to Select/Hire

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

(2) Dual enrollment course faculty must meet the minimum credential requirements set forth by Form VCCS-29 (Attachment 3) and the Commission on Colleges of the Southern Association of Colleges and Schools.

b. Payment

If the instructor for dual enrollment course(s) is employed full time by the Virginia Beach Public Schools Systemand the course(s) are part of the assigned teaching work load, the College will reimburse the Virginia Beach Public Schools System for the services of its employee in lieu of direct compensation to the faculty member. If, however, the College employs an instructor that is not affiliated with the Virginia Beach Public Schools System, the College will compensate the faculty member directly. Reimbursement and/or payment of faculty salaries directly will be in accordance with the Virginia Community College System approved lecturer rates depending on qualifications of the instructor and will occur no later than the end of the semester of the course.

c. Faculty Responsibilities

Instructors will be expected to conform to college policies for the dual enrollment courses they teach, such as preparing course syllabi, verifying class rosters, reporting student progress to the College at mid-semester, taking attendance, and providing final grades at the end of the semester. Instructors will be subject to the College's faculty/course evaluation policy and procedures.

C & I Assistant
AUG 23 2010
Student Services

All faculty teaching dual enrollment courses will be required to attend faculty orientation and other in-service programs as agreed upon by both parties.

6. Students

   a. Selection and Eligibility to Participate in Dual Enrollment Program

      (1) In order to be eligible to participate in the Dual Enrollment Program, high school students must have permission of their parent or guardian to participate, be recommended by their high school principal to cross register, and meet course prerequisites.

      (2) Students must meet admission and course placement requirements of the College. Requirements for admission include the completion of an application for admission to the college and satisfactory completion of the College's placement tests as required.

      (3) Exceptions to the policies established in 6.a.(1) and 6.a.(2) regarding student eligibility may be made on a case-by-case basis with the approval of the public school superintendent and appropriate community college officials, so long as such exceptions are in accordance with the VCCS Policy Manual.

7. College Administrative Responsibilities

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

   b. A record will be maintained by the College for each student in the Dual Enrollment Program as a part of the permanent college record maintained by the College's Admissions and Records office. The College will send transcripts to colleges/universities upon a student's request.

   c. The College will provide a minimum of 800 minutes of instruction (to include testing and evaluation) for each lecture credit and a minimum of 1600 minutes of instruction for each lab credit hour per semester to Virginia Beach Public Schools System students enrolled in college courses under this agreement.

C & I Assistant

AUG 23 2010

Superintendent

8. High School Administrative Responsibilities

   Virginia Beach Public Schools System will verify enrollments in each class section, and instructors will report grades to the College within a prescribed period of time, according to mutually agreed-upon procedures.

9. Award of Credit

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

10. Course Standards

a. Course Equivalency, Evaluation, and Assessment

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

b. Modifications of Policies

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

c. Student Performance

The College reserves the right to advise the student, parents, and Virginia Beach Public Schools System that the student does not have sufficient skills or abilities to continue in the courses selected after the first semester.

11. Agreement Contacts

Contact persons for this agreement are:

- the School System: Rodney J. Burnsworth
- the School: Fran Sharer
- the College: Dr. Michael Summers

C & I Assistant

AUG 10 2010

Superintendent

12. Transferability

Normally, academic courses intended for transfer with a grade of "C" or above will transfer to institutions of higher education. However, no guarantee can be made to students regarding transferability to all colleges and universities. Community college career/technical course credits earned are applicable to specific curricula and are intended to prepare students for

employment in those areas. While some of these courses may be accepted for transfer, no uniform policy on the transfer of applied/technical courses exists. The School should advise students to consult with transfer institutions in order to determine if their courses will be accepted for transfer.

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

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

15. If either party wishes to terminate this agreement, a written notice must be provided to the other party within [30]* days of the requested termination date. Termination will not take place until dual enrollment courses in progress are completed.
*The number of days should be negotiated between the School/System and the Community College.

16. The College or the Virginia Beach Public Schools System shall not unlawfully discriminate on the basis of race, nationality, ethnicity, religion, gender, age, or disability in any undertaking pursuant to this contract. Disabled students will continue to receive accommodations through the School pursuant to the Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C § 1400.

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

Signatures:

Deborah M. DiCroce, President
Tidewater Community College

10/19/10
Date

James G. Merrill, Superintendent
Virginia Beach Public Schools

8/24/10
Date

C & I Assistant

VIRGINIA BEACH CITY PUBLIC SCHOOLS

AHEAD OF THE CURVE

Department of Curriculum and Instruction
Office of Secondary Instructional Services

AGREEMENT CONTRACT BETWEEN
THE SCHOOL BOARD OF THE CITY OF VIRGINIA BEACH
AND TIDEWATER COMMUNITY COLLEGE
SEPTEMBER 2010- JUNE 2012

Approved as to Content:

Rodney J. Bumsworth, Director
Office of Secondary Instructional Services
Department of Curriculum and Instruction

August 19, 2010
Date

****

Approved as to Availability of Funds and Business Content:

Sammy Cohen, Director
Office of Business Services

8/19/10
Date

8/08

C & I Assistant
AUG 23 2010
Superintendent

SCHOOL BOARD ATTACHMENT A

This contract is between the School Board of the City of Virginia Beach and Tidewater Community College. Any reference in any part this Agreement to a specific department or organization or to the Virginia Beach City Public Schools or VBCPS, shall be interpreted when reasonable to mean the School Board of the City of Virginia Beach.

Contractor as used herein refers to Tidewater Community College.

APPLICABLE LAW/COMPLIANCE WITH ALL LAWS/VENUE

Applicable Law:

This Contract shall be deemed to be a Virginia contract and shall be governed as to all matters whether of validity, interpretations, obligations, performance or otherwise exclusively by the laws of the Commonwealth of Virginia, and all questions arising with respect thereto shall be determined in accordance with such laws. Regardless of where actually delivered and accepted, this Contract shall be deemed to have been delivered and accepted by the parties in the Commonwealth of Virginia.

Compliance with All Laws:

Contractor agrees to comply with all applicable federal, state, and local laws, ordinance, and regulations.

Venue:

Any and all suits for any claims or for any and every breach or dispute arising out of this Contract shall be maintained in the appropriate court of competent jurisdiction in the City of Virginia Beach. No claim shall ever be arbitrated.

CONFIDENTIALITY

Contractor hereby acknowledges that the information that it may receive access may be confidential student records protected from disclosure to unauthorized parties by the Family Educational Rights and Privacy Act, 20 U.S.C. 1232 g, 34 C.F.R. Part 99. As an agent of the School Board, the Contractor hereby agrees that it will protect the confidentiality of these records and not disclose the information to any other party without the prior consent of the parent or eligible student.

Failure to comply with this provision will result in the contractor losing the right to access personally identifiable information from the School Board's education records for a period of five years. Contractor may not release information concerning the student (including names, addresses, telephone numbers, email address, or other identifying

C & I Assistant

AUG 13 2010

Superintendent

information) without the express written consent of the parent or eligible student. Contractor may not use any such information for any purpose other than the provision of services under this contract.

NON-ASSIGNMENT

Contractor shall not assign any portion of the Contract without express written permission of the School Board of the City of Virginia Beach.

MODIFICATION

There may be no modification of this Contract, except in writing, executed by the authorized representatives of the School Board and Contractor.

FAITH-BASED DISCLAIMER

The School Board of the City of Virginia Beach does not discriminate against faith-based organizations.

NON-APPROPRIATION

It is understood and agreed between the parties hereto that the School Board of the City of Virginia Beach shall be bound an obligated hereunder only to the extent that the funds shall have been appropriated and budgeted for the purpose of the Contract. In the event funds are not appropriated and budgeted in any fiscal year for payments due under this Contract, the School Board of the City of Virginia Beach shall immediately notify Contractor of such occurrence and this Contract shall terminate on the last day of the fiscal year for which (an) appropriation(s) (was) were received without penalty or expense to the School Board of the City of Virginia Beach of any kind whatsoever.

DISPOSITION OF CONTRACT CLAIMS

Contractual claims, whether for money or other relief, shall be submitted in writing no later than 60 days after receipt of final payment; however, written notice of the contractor's intention to file a claim shall be given at the time of the occurrence or at the beginning of the work upon which the claim is based.

No written decision denying a claim or addressing issues related to the claim shall be considered a denial of the claim unless the written decision is signed by the public body's chief administrative officer or his designee. The contractor may not institute legal action prior to receipt of the final written decision on the claim unless the public body fails to render a decision within 90 days of submission of the claim. Failure of the public body to render a decision within 90 days shall not result in the contractor being awarded the relief claimed or in any other relief or penalty. The sole remedy for the public body's failure to render a decision within 90 days shall be the contractor's right to institute immediate legal action.

C & I Assistant

AUG 13 2010

Superintendent

Attachment 1

Tidewater Community College
Virginia Beach City Public Schools

DUAL ENROLLMENT COURSES
2011 - 2013

ENGLISH

ENG 111	COLLEGE COMPOSITION I
ENG 112	COLLEGE COMPOSITION II
ENG 125	INTRODUCTION TO LITERATURE
ENG 210	ADVANCED COMPOSITION
ENG 131	TECHNICAL REPORT WRITING I

MATHEMATICS

MTH 158	COLLEGE ALGEBRA
MTH 163	PRE-CALCULUS I
MTH 164	PRE-CALCULUS II
MTH 173	CALCULUS WITH ANALYTICAL GEOMETRY I
MTH 174	CALCULUS WITH ANALYTICAL GEOMETRY II
MTH 240	STATISTICS

SOCIAL SCIENCES

HIS 121	US HISTORY I
HIS 122	US HISTORY II
HIS 141	AFRICAN AMERICAN HISTORY I
PHI 260	STUDIES IN EASTERN THINKING
PSY 201	INTRODUCTION TO PSYCHOLOGY I
PSY 202	INTRODUCTION TO PSYCHOLOGY II
SOC 201	INTRODUCTION TO SOCIOLOGY I
SOC 202	INTRODUCTION TO SOCIOLOGY II
ADJ 105	JUVENILE JUSTICE SYSTEM
ADJ 201	CRIMINOLOGY
ADJ 211	CRIMINOLOGY LAW, EVIDENCE AND PROCEDURES I
ADJ 212	CRIMINOLOGY LAW, EVIDENCE AND PROCEDURES II

FINE ARTS

ART 121	DRAWING I
ART 122	DRAWING II

Revision: June 29, 2010

C & I Assistant
AUG 13 2010
Superintendent

Attachment 2

Tidewater Community College

Virginia Beach Campus Dual Enrollment:
Other Costs and Services

Each student must pay the costs for placement testing ($4.00). There are no other fees.

C & I Assistant
AUG 13 2010
Superintendent

Attachment 3

Tidewater Community College

Virginia Community College System
Qualifications of Faculty
Effective July 1, 2005

Qualifications for faculty in the Virginia Community College System are aligned with the Principles of Accreditation of the Commission on Colleges of the Southern Association of Colleges and Schools (SACS). SACS states:

The institution employs competent faculty members qualified to accomplish the mission and goals of the institution. When determining acceptable qualifications of its faculty, an institution gives primary consideration to the highest earned degree in the discipline in accordance with the guidelines listed below. The institution also considers competence, effectiveness, and capacity, including, as appropriate, undergraduate and graduate degrees, related work experiences in the field, professional licensure and certifications, honors and awards, continuous documented excellence in teaching, or other demonstrated competencies and achievements that contribute to effective teaching and student learning outcomes. For all cases, the institution is responsible for justifying and documenting the qualifications of its faculty.

Credential Guidelines:

1. Faculty teaching associate degree courses designed for transfer to a baccalaureate degree: doctor's or master's degree in the teaching discipline or master's degree with a concentration in the teaching discipline (a minimum of 18 graduate semester hours in the teaching discipline)
2. Faculty teaching associate degree courses not designed for transfer to the baccalaureate degree: bachelor's degree in the teaching discipline, or associate's degree and demonstrated competencies in the teaching discipline.

In addition to the above two categories of faculty specified by SACS, the VCCS adds the following:

3. Faculty teaching courses designed for non-associate degree occupational fields: high school diploma or equivalent with demonstrated competencies in the teaching field.
4. Faculty teaching developmental courses: bachelor's degree in a discipline related to the teaching assignment and either teaching/occupational experience related to the teaching assignment or graduate training in developmental education.

The accompanying chart (VCCS-29) specifies the normal minimum criteria for each faculty rank. This chart applies to teaching faculty and administrators. For administrators and professional faculty (counselors, and librarians), "teaching effectiveness" refers to effective performance in the primary area of responsibility and "teaching experience" includes professional service in the primary area of responsibility. The chart should be used and interpreted in conjunction with the above general principles, Section 3.2 (Faculty Qualifications) of the VCCS Policy Manual, and the following interpretive specifications

Interpretive Specifications

- Fulfillment of normal minimum criteria does not guarantee original placement in, or promotion to, a given rank.
- Minimum degree requirements for original appointments and promotions must be met.
- The following are appropriate substitutions for requirements beyond the minimum degree specified for a given rank, which may be used at the discretion of the college.
  a) Teaching experience beyond the minimum required may be used in lieu of occupational experience at the rate of one year of teaching experience being considered equivalent to a required year of occupational experience.
  b) Occupational experience beyond the minimum required may be used in lieu of teaching experience at the rate of one year of related occupational experience being considered equivalent to a required year of teaching experience.
  c) Educational preparation above the requirements for initial placement in rank may fulfill requirements for occupational experience and/or teaching experience at the rate of 30 undergraduate credits being considered equivalent to one year of teaching or occupational experience, and 24 graduate credits being considered equivalent to one year of teaching or occupational experience.

3-4A
7/05 *(Effective Date)*

C & I Assistant
AUG 1 1 2010
Attachment

d) Certification in lieu of a degree will be possible for initial hiring in Columns 3 and 5. Business, industry and professional certifications may substitute for educational requirements. Equivalencies must be documented, approved by the president, and placed in the personnel file as an attachment to hiring and promotion documents. Sample equivalencies are available on the System website.

e) Eighteen graduate semester hours of course work related to the teaching field may substitute for the requirement that a bachelor's degree be related to the teaching field.

f) Measurement of teaching effectiveness for initial appointments is determined through references; for promotions, it is determined using the evaluation ratings for the two previous years.

g) The MFA Degree for those faculty who teach a majority of classes in studio art, theater, or creative writing areas shall be recognized as a terminal degree. The requirement of the doctoral degree under columns one and two for such faculty will not be necessary; however, these faculty will still need to satisfy the requirements of credits in the teaching field and another requirements for promotion to upper ranks of the professoriate.

h) In cases where program accreditation agencies recommend specific graduate courses for faculty, those courses should be considered to be "in the teaching field" for VCCS- 29 purposes regardless of the course prefix or other criteria normally used to determine the status of course work.

Interpretive Specifications for Promotions Only

- Credit hour equivalency may be granted for no more than a total of 15 semester hours by either a. or b. below or a combination of both during employment with the VCCS.
  a) Active participation in given learning experiences (c. e. u. classes, workshops, conferences, seminars, etc.) when part of a plan approved by the Community College President applying the following formula: 45 contact hours is equivalent to one semester credit hour.
  b) Non- teaching work experience directly related to the faculty member's field at a rate not to exceed 1.25 semester credit hours per month of full- time equivalent work experience and not to include work experience applied toward initial appointment.

- Any exceptions to the criteria as outlined in the VCCS-29 must be fully justified and documented in accordance with the Community College's Human Resource Delegation Agreement.

C & I Assistant
AUG 12 2010
President

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

	Faculty in Humanities, Soc. Sciences, Natural Sciences and Math, Developmental Studies, Counselors, Librarians		Faculty in Specialized Professional or Technical Associate or Applied Sciences or Arts Degree Fields		Faculty in Non-Associate Degree Occupational Fields	
	Initial Appointment/ Promotions	Promotions	Initial Appointment/ Promotions	Promotions	Initial Appointment/ Promotions	Promotions
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
ASSISTANT INSTRUCTOR	Appointment on a temporary or emergency basis for a period of one year for persons who meet most of the minimum requirements for the instructor rank and who show evidence of being able to complete such requirements within one year. A one-year renewal only of assistant instructor appointment may be considered upon request of the college administrator for a person who is actively pursuing completion of the necessary requirements.					
INSTRUCTOR						
Teaching Effectiveness	Good		Good		Good	
Academic Preparation	Master's in field or Master's w/18 grad. s.h. in teaching field (The minimum requirement for faculty teaching developmental courses at the instructor level is a baccalaureate degree.)		Bachelor's in teaching field or Associate's in teaching field with demonstrated competency in teaching field.		HS. dip. or equiv. Assoc. or equiv. in teaching field preferred.	
Experience:						
Related Occup. Exp.	0 yrs.		7 yrs.		5 yrs. current exper.	
Total Teaching Exp.	0 yrs.		0 yrs.		0 yrs.	
FT Community College Experience	0 yrs.		0 yrs.		0 yrs.	
Professional Activities and Contributions	Demonstrates Potential		Demonstrates Potential		Demonstrates Potential	
ASSISTANT PROFESSOR						
Teaching Effectiveness	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Academic Preparation	Master's + 24 grad. s.h. (27 grad s.h. in teaching field.)	Master's + 15 grad. s.h. (27 grad. sem. hrs in teaching field)	Bachelor's in teaching field + 24 grad. s.h.	Bachelor's in teaching field +15 grad s.h.	Assoc. or equiv. (Major in teaching field)	High school or equiv. + 30 s.h. inc. toward an Assoc Degree
Experience:						
Related Occup. Exp.	0 yrs.	4 yrs.	2 yrs.	7 yrs.	5 yrs.	5 yrs.
Total Teaching Exp.	0 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.
FT Community College Experience	0 yrs.	3 yrs.				
Professional Activities and Contributions	Good	Good	Good	Good	Good	Good
ASSOCIATE PROFESSOR						
Teaching Effectiveness	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Academic Preparation	Doctorate (36 grad s.h. in teaching field)	Master's + 33 grad. s.h. (36 grad hours in teaching field)	Master's related to teaching field +15 grad s.h.	Master's related to teaching field	Bachelor's related to the teaching field	Assoc. related to the teaching field or equiv. + 30 s.h.
Experience:						
Related Occup. Exp.	0 yrs.	0 yrs.	2 yrs.	3 yrs.	5 yrs.	5 yrs.
Total Teaching Exp.	6 yrs.	5 yrs.	6 yrs.	5 yrs.	6 yrs.	6 yrs.
FT Community College Experience	0 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.
Professional Activities and Contributions	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Min. VCCS Exp. in Previous Rank	0 yrs.	3 yrs.	0 yrs.	3 yrs.	3 yrs.	3 yrs.
PROFESSOR						
Teaching Effectiveness	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Academic Preparation	Doctorate (36 grad s.h. in teaching field)	Doctorate (36 hours in teaching field)	Master's related to teaching field + 36 grad. s.h.	Master's related to teaching field + 36 grad s.h.	Master's related to the teaching field	Master's related to the teaching field
Experience:						
Related Occup. Exp.	0 yrs.	0 yrs.	2 yrs.	2 yrs.	5 yrs.	5 yrs.
Total Teaching Exp.	9 yrs. Post secondary	3 yrs.	9 yrs. Post secondary	8 yrs.	9 yrs. Post secondary	9 yrs.
FT Community College Experience	6 yrs.	3 yrs.	0 yrs.	3 yrs.	0 yrs.	3 yrs.
Professional Activities and Contributions	Exceptional	Excellent	Exceptional	Excellent	Exceptional	Excellent
Min VCCS Exp. in Previous Rank	0 yrs.	3 yrs.	0 yrs.	3 yrs.	3 yrs.	3 yrs.

3-5A
7/05 *(Effective Date)*

Virginia Community College System
NORMAL MINIMUM CRITERIA FOR EACH FACULTY RANK

C & I Assistant
AUG 13 2010
Superintendent

Appendix F:

Memoranda

of

Agreement

MEMORANDUM OF AGREEMENT

BETWEEN PARTNERS

AND THE LANDSTOWN HIGH SCHOOL TECHNOLOGY ACADEMY

PARTNERS AND THE LANDSTOWN HIGH SCHOOL TECHNOLOGY ACADEMY agrees to enter into this Agreement to support the Technology Academy STEM program. The Technology Academy will provide enhance opportunities in the areas of Information Technology, Entrepreneurship Technology, and STEM Pre-Engineering Technology preparing participants for the 21st century work place, advanced technical training or entrance into college or university studies. A focus of the program will be to increase opportunities for internships in STEM related fields and other fields of innovation based upon workforce needs of the region.

MOA TIMEFRAME:

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Landstown High School Technology Academy agrees to:

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- Provide guidance and expertise to staff and/or students to promote STEM related teaching and learning

By signing this agreement both institutions agree to be active partners and agree to abide by this agreement.

Landstown High School and Technology Academy — PARTNER

Robin Lisette Diehl — 2/7/12

Technology Academy Coordinator — Date

Virginia Commonwealth University — 2/7/2012

Organization — Date

Signature

President VCU

Title

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 2/16/12

Technology Academy Coordinator — Date

Norfolk State University — 2-16-12

Organization — Date

Regina V.K. Williams

Signature

Interim Vice President, Finance and Administration

Title

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Landstown High School and Technology Academy **PARTNER**

Robin Colette Diehl — 1/18/12

Technology Academy Coordinator — Date

Tidewater Community College — 1/18/12

Organization — Date

Susan N. Dozier Susan N. Dozier

Signature

Professor

Title

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Landstown High School and Technology Academy PARTNER

Robin Lisette Diehl 1/17/12

Technology Academy Coordinator Date

Old Dominion University, Marketing Education 1/17/12

Organization Date

Signature

Program Leader, Asst. Professor

Title

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ATTN: Mrs. Lisette Diehl
Signed Memorandum of Agreement Between Partners & Landstown Tech. Academy

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Landstown High School and Technology Academy **PARTNER**

Lisette Diehl — 1/25/12

Technology Academy Coordinator — Date

ECPI University — 1/25/12

Organization — Date

Frank Gomez (Frank Gomez)

Signature

Freshman Admissions Presenter

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

John Lisette Diehl — 1/18/12

Technology Academy Coordinator — Date

Bryant & Stratton College — Jan 18, 2012

Organization — Date

Francis Bruce

Signature

Market High School Coordinator

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 2/27/12

Technology Academy Coordinator — Date

I.T.T. Technical Institute — 2/27/12

Organization — Date

Signature

Director

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Robin Odette Diehl — 1/12/12

Technology Academy Coordinator — Date

Johnson & Wales University — 1/31/12

Organization — Date

Marcia A. Marsey

Signature

Admissions Representative

Title

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 1/18/12

Technology Academy Coordinator — Date

Armed Forces Communications & Electronics Association (AFCEA) Hampton Roads Chapter — 1/18/2012

Organization — Date

Mary K Yoyn

Signature

AFCEA Hampton Roads Chapter Educational Foundation Chair

Title

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 1/12/12

Technology Academy Coordinator — Date

1080 Education Inc. (Ten80) — January 12, 2012

Organization — Date

Signature

President, Ten80 Education (NASCAR)

Title

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Landstown High School and Technology Academy **PARTNER**

Robin Sigette Diehl — 1/11/12

Technology Academy Coordinator — Date

Newfangled Solutions LLC — 1/11/2012

Organization — Date

Scott Nims

Signature

Owner (Artsoft Mach 3 software)

Title

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- Provide guidance and expertise to staff and/or students to promote STEM related teaching and learning

By signing this agreement both institutions agree to be active partners and agree to abide by this agreement.

Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 1/11/12

Technology Academy Coordinator — Date

WhiteBox Learning — 1/11/12

Organization — Date

W. Graham Baughman (Wm. Graham Baughman)

Signature

CEO

Title

MEMORANDUM OF AGREEMENT

BETWEEN PARTNERS

AND THE LANDSTOWN HIGH SCHOOL TECHNOLOGY ACADEMY

PARTNERS AND THE LANDSTOWN HIGH SCHOOL TECHNOLOGY ACADEMY agrees to enter into this Agreement to support the Technology Academy STEM program. The Technology Academy will provide enhance opportunities in the areas of Information Technology, Entrepreneurship Technology, and STEM Pre-Engineering Technology preparing participants for the 21st century work place, advanced technical training or entrance into college or university studies. A focus of the program will be to increase opportunities for internships in STEM related fields and other fields of innovation based upon workforce needs of the region.

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Postsecondary Education Partners: Old Dominion University Marketing Education Program, Norfolk State University College of Science, Engineering and Technology, Virginia Commonwealth University School of Engineering, and Tidewater Community College and future partners agree to:

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Landstown High School and Technology Academy **PARTNER**

Robyn Lisette Diehl — 1/23/12

Technology Academy Coordinator — Date

VirginiaFIRST — January 23, 2012

Organization — Date

Signature

Executive Director

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Technology Academy Coordinator — Date: 1/31/12

STIHL Inc. — Date: 31 Jan '12

Organization — Date

Simon Nance

Signature

Manager – Training & Development

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 1/12/12

Technology Academy Coordinator — Date

InMotion Hosting — 1/27/12

Organization — Date

Ashleigh Smith

Signature

HR Generalist

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl 1/18/12

Technology Academy Coordinator Date

Virginia Beach Schools Federal Credit Union 1/18/2012

Organization Date

Amy M Courtwright

Signature

Vice President of Marketing

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 1/23/12

Technology Academy Coordinator — Date

City of Vb. Beach, Dept. of Parks & Recreation — 1-23-12

Organization — Date

Janis Sweeney

Signature

Parks & Recreation Supervisor

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Robin Brigitte Diehl — 1/17/12

Technology Academy Coordinator — Date

Junior Achievement of Greater Hampton Roads — 1/17/12

Organization — Date

Kevin Will - Kevin Will

Signature

President, Junior Achievement of Greater Hampton Roads, Inc.

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Technology Academy Coordinator — Date: 2/7/11

Goodwill — Date: 2/7/11

Organization — Date

Danielle Spain

Signature

Community Relations Manager

Title

MEMORANDUM OF AGREEMENT

BETWEEN PARTNERS

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Landstown High School and Technology Academy **PARTNER**

Technology Academy Coordinator — Date

Norfolk Admirals Hockey — 2/7/12

Organization — Date

Signature

Director of Group Sales

Title

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Landstown High School and Technology Academy **PARTNER**

Barbara Lisette Diehl — 1/17/12

Technology Academy Coordinator — Date

Beach Windows & Siding — 1/17/12

Organization — Date

President

Signature

President

Title

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 1/30/12

Technology Academy Coordinator — Date

TOTAL SPORTSWEAR SOLUTIONS, LLC — 1/30/2012

Organization — Date

Signature

OWNER

Title

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Landstown High School and Technology Academy **PARTNER**

Robyn Lisette Buehl — 1/27/12

Technology Academy Coordinator — Date

X Food Lion — 1/27/12

Organization — Date

* Ashley Gelus

Signature

* Customer Service + Sales Manager

Title

MEMORANDUM OF AGREEMENT

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- Provide resources and opportunities for Technology Academy students to receive real world experiences through project-based learning, field trips, guest speakers, job-shadowing, internships, and mentorships.
- Provide guidance and expertise to staff and/or students to promote STEM related teaching and learning

By signing this agreement both institutions agree to be active partners and agree to abide by this agreement.

Landstown High School and Technology Academy **PARTNER**

Robin Odette Diehl — 1/12/12

Technology Academy Coordinator — Date

Chick-fil-a — 1/25/12

Organization — Date

Signature

General Manager

Title

MEMORANDUM OF AGREEMENT

BETWEEN PARTNERS

AND THE LANDSTOWN HIGH SCHOOL TECHNOLOGY ACADEMY

PARTNERS AND THE LANDSTOWN HIGH SCHOOL TECHNOLOGY ACADEMY agrees to enter into this Agreement to support the Technology Academy STEM program. The Technology Academy will provide enhance opportunities in the areas of Information Technology, Entrepreneurship Technology, and STEM Pre-Engineering Technology preparing participants for the 21st century work place, advanced technical training or entrance into college or university studies. A focus of the program will be to increase opportunities for internships in STEM related fields and other fields of innovation based upon workforce needs of the region.

MOA TIMEFRAME:

The MEMORADUM OF AGREEMENT period shall be January 10, 2012 through June 30, 2013 and will be extended annually unless modified or terminated by a partner.

PARTNERS' AGREEMENTS:

Landstown High School Technology Academy agrees to:

- Facilitate the Technology Academy Advisory Committee
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- Facilitate the administration of industry certifications exams
- Deliver counseling and other services that promote STEM education, career pathways, educational advancement and employment opportunities
- Provide documentation and information as requested by the Department of Education
- Provide the required equipment, software, and technical support to facilitate instruction

Postsecondary Education Partners: Old Dominion University Marketing Education Program, Norfolk State University College of Science, Engineering and Technology, Virginia Commonwealth University School of Engineering, and Tidewater Community College and future partners agree to:

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Buehl — 1/18/12

Technology Academy Coordinator — Date

Rite Aid #11264 — 1/18/12

Organization — Date

Laurina Runyan

Signature

Store Manager

Title

MEMORANDUM OF AGREEMENT

BETWEEN PARTNERS

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Landstown High School and Technology Academy **PARTNER**

Robin Lisette Diehl — 1/19/12

Technology Academy Coordinator — Date

CINEMA CAFE — 1/19/12

Organization — Date

Michael Butler

Signature

Manager

Title

MEMORANDUM OF AGREEMENT

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Landstown High School and Technology Academy **PARTNER**

Robyn Lisette Diehl — 1/25/12

Technology Academy Coordinator — Date

College House, Oarsmen — 1/25/12

Organization — Date

James M. Katz

Signature

manufacturers sales representative

Title

MEMORANDUM OF AGREEMENT

BETWEEN PARTNERS

AND THE LANDSTOWN HIGH SCHOOL TECHNOLOGY ACADEMY

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Landstown High School and Technology Academy **PARTNER**

Robin Brigitte Diehl — 1/17/12

Technology Academy Coordinator — Date

Jake's Smoke house BBQ — 1-17-12

Organization — Date

Signature

Owner

Title

Appendix G:

Insurance

Certificate

CERTIFICATE OF COVERAGE

Rev: 07/07/05

Producer:
VML INSURANCE PROGRAMS
P.O. Box 3239, Glen Allen, VA 23058
1-800-963-8600 (Phone); 1-804-968-4662 (Fax)
www.vmlins.org

This Certificate is issued as a matter of information only and confers no rights upon the Certificate Holder. This Certificate does not amend, extend or alter the Membership Agreement afforded by the policies below, nor guarantees the solvency of VML Insurance Programs.

COMPANIES AFFORDING COVERAGE

VML Insurance Programs

Named Insured:
Virginia Beach Schools
1565 Corp Landing Parkway, Suite 200
Virginia Beach, VA 23454

COVERAGES

This is to certify that the coverage listed below has been issued to the Member 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 coverage afforded by the policies described herein is subject to all the terms, exclusions and conditions of the Member Agreement and the policy forms. Limits shown may have been reduced by paid claims.

Type of Coverage	Policy Number	Effective Date	Expiration Date	Limits	
General Liability	P-2011-2012-VMLP-0662-1	07/01/2011	07/01/2012	Each Occurrence	$1,000,000
Damage to Premises Rented to You				Any One Fire	$1,000,000
Medical Payments				Any One Person	$10,000
Excess Liability	P-2011-2012-VMLP-0662-1	07/01/2011	07/01/2012	Per Occurrence	$4,000,000
Automobile Liability	P-2011-2012-VMLP-0662-1	07/01/2011	07/01/2012	Each Occurrence	$1,000,000
Any Auto				Combined Single Limit	$1,000,000

Description of Operations/Locations/Vehicles/Special Items
Evidence of Coverage for Landstown High School's application for the STEM Academy Program

CERTIFICATE HOLDER

Virginia Department of Education
Office of Career & Technical Education Services
James Monroe Bldg, Floor 21, 101 N 14th Street
Richmond, VA 23219

CANCELLATION: Should the above described Member Agreement be cancelled before the expiration date thereof, VML Insurance Programs will endeavor to mail written notice within 30 days to the Certificate Holder named to the left, but failure to mail such notice shall impose no obligation of any kind upon VML Insurance Programs, its agents or representatives.

By: *Crystal Griffin* Date: 01/23/2012

Appendix H:

Statement

of

Assurance

from

Fiscal Agent

Landstown High School Technology Academy
Governor's Science, Technology, Engineering and Mathematics (STEM) Academy

STATEMENT OF ASSURANCES

The authorized signature on this page certifies to the Virginia Department of Education that the authorized official assures that:

1. The planning committee has reviewed the provisions of *Administrative Procedures Guide for the Establishment of Governor's STEM Academies* outlined in the Guidance Manual, and understands that an implementation proposal will need to address these criteria and/or others approved by the Virginia Board of Education.

2. The planning committee agrees to follow the guidelines set forth in the *Administrative Procedures* Guide for the Establishment of Governor's STEM Academy's document.

3. Virginia Beach City Public Schools will serve as the grant fiscal agent.

Certification by Authorized or Institutional Official:

The applicant certifies that to the best of his/her knowledge the information in this application is correct, that the filing of this application is duly authorized by the partners participating in this process to establish a Governor's STEM Academy, and that the applicant will comply with the statements of assurances.

JAMES G. MERRILL — Typed or Printed Name of Authorized Official

Superintendent — Title

Signature of Authorized Official

1/24/12 — Date

1/24/12

1/24/12

Appendix I:

Budget

GOVERNOR'S STEM ACADEMY

BUDGET

A – Director Costs	TOTAL			
	State Funds	Perkins Funds	Other Funds (Local or grant funds to be described in Budget Narrative)	In-Kind
1. Personnel --- 1000			$2,700	
2. Employment Benefits --- 2000			$0	
3. Purchased/Contractual Services ---- 3000			$0	
4. Internal Services ---- 4000			$0	
5. Staff Development ---- 5000			$1,200	
6. Summer Component Activities ---- 5000			$0	
7. Travel ---- 5000			$0	
8. Contractual Services ---- 5000			$0	
9. Materials and Supplies ---- 6000			$6,400	
10. Equipment ---- 8000			$0	
11. Facilities ---- 8000			$0	
B – Indirect Costs *			$0	
TOTAL			$10,300	

* If recovering indirect costs, the rate must not exceed the federally approved indirect cost rate of the fiscal agent.

Appendix J:

References

References:

Center on Education and the Workforce, Georgetown University. Career Clusters: Forecasting Demand for High School through College Jobs, 2008-2018

Deloitte and The Manufacturing Institute. Boiling Point? The skills gap in U. S. manufacturing

Hampton Roads Research Partnership. Innovate! Hampton Roads. November 14, 2011

International Technology Education Association. Advancing the STEM Workforce through STEM-centric career Development by Rich Feller, September 2011.

Jobs for the Future. 2007. The STEM Workface Challenge: the Role of the Public Workforce System in a National Solution for a Competitive Science, Technology, Engineering, and Mathematics (STEM) Work force.

The Alliance for Science & Technology Research in America. Virginia's K–12 STEM Ed Report Card. 2011.