Annual Report to Governor and General Assembly on

Pathways in Technology Early College High (P-TECH) schools

(Chapter 144, Acts of 2016)

December 1, 2016

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I.   Background/Introduction

Maryland leads the nation in terms of a high quality public education system, from early childhood preschool through higher education. Maryland is expanding pre-kindergarten programs, offering innovative K-12 initiatives, and providing world-class colleges and universities. Early college experiences, through Advanced Placement (AP), International Baccalaureate (IB), and Dual Enrollment (DE) are an important part of this system. The Pathways in Technology Early College High School (P-TECH) program strengthens the connection between education and career opportunities, while advancing degree completion goals in Maryland.

P-TECH schools are innovative public schools that create clear pathways from high school to college and career for young people from all academic backgrounds. In six years or less, students graduate with a high school diploma and a no-cost, two-year associate degree in a Science, Technology, Engineering and Math (STEM) career field. Each P-TECH school works with industry partners and a local community college to ensure an up-to-date curriculum that is academically rigorous and economically relevant. For more information on P-TECH Schools, please visit www.ptech.org.

Each P-TECH program requires a partnership among three entities; a local school system (LSS), a local institution of higher education, and a local employer in the technology field. Hallmarks of the program include one-on-one mentoring, workplace visits and skills instruction, paid summer internships and first-in-line consideration for job openings with a school's partnering company.

P-TECH was designed to address skills gaps in the labor force by preparing young people from all backgrounds for academic achievement and skilled, middle-skill employment. IBM created the P-TECH program design that would link education to economic development and illuminate a pathway from high school to college and career. According to the Department of Commerce, Maryland has 230,000 STEM jobs, which is the second largest share of a state's employer base in the U.S. While the degree attainment rate (associate degree and higher) in Maryland improved from 43.9 percent in 2008 to 46.9 percent in 2014 (Lumina Foundation, 2014), Maryland still suffers from a shortage of highly qualified employees, with approximately 6,000 STEM openings a year and only 4,000 STEM graduates, one of the largest workforce deficits in the U.S. (STEM Workforce Data Book, 2011).

The Pathways in Technology Early College High School (P-TECH) Act of 2016 (Chapter 144 of the Annotated Code of Maryland, Education Article) established the P-TECH Stakeholders Work Group to examine the implementation of Maryland P-TECH pilot schools and to determine optimum funding for statewide implementation of Maryland P-TECH schools. Work Group membership under the leadership of Dr. Lynne Gilli, Chair, brings together members of the General Assembly, State agencies, higher education institutions, business, representatives, and other organizations interested in early college high schools.

II.   Stakeholder Work Group Membership

Member	Position / Organization
Cynthia Bambara	President, Allegany College
Angela Carroll	Education Analyst, Maryland Higher Education Commission
Sean Conley	Chief Academic Officer, Baltimore City Public Schools
Brian Dulay	Executive Director, Maryland Business Roundtable for Education
Lateefah Durant	Officer of College & Career Readiness, Prince George's County Public Schools
Dr. Helga Einhorn	Assistant Superintendent for Instruction, Talbot County Public Schools
Dr. Lynne Gilli	Assistant State Superintendent, Maryland State Department of Education
Jeanne Hitchcock	Special Advisor, Johns Hopkins University
Dr. Kim Kalbaugh	Chief Academic Officer, Allegany County Board of Education
Sally Scott Marietta	Program Manager, IBM
Dr. Gordon May	President, Baltimore City Community College
Larry McKenzie	Chief Financial Officer, Allegany County Public Schools
Kristy Michel	Chief Operating Officer, Maryland State Department of Education
Patricia Mikos	Program Manager, Maryland State Department of Education
Keiffer Mitchell, Jr.	Special Advisor, Office of the Governor
Gregory Pilewski	Interim Superintendent, Queen Anne's County Board of Education
Dr. Patricia Saelens	Assistant Superintendent for Instruction, Caroline County Public Schools
Dr. Barbara Viniar	President, Chesapeake College
Angela Visintainer	Director of Economic Development, Caroline Economic Development Corp.

Additional support and contributions to the Work Group included policy analysts from the Department of Legislative Services, Garret Halbach and Dana Tagalicod, as well as staff from MSDE and the Maryland Higher Education Commission (MHEC), including Dr. Emily Dow, Assistant Secretary, Academic Affairs. Representatives from the six (6) P-TECH Planning Grant teams also participated in the Work Group process and provided information regarding proposed implementation strategies and budget requirements. Dr. Tonya Ringgold, Vice President for Academic Affairs, Baltimore City Community College also shared early implementation information regarding the first two P-TECH schools in Baltimore City.

III.   Charge to the Work Group

The Maryland State Department of Education (MSDE), in collaboration with stakeholders, including the Maryland Higher Education Commission (MHEC), the Maryland Association of Community Colleges, private sector representatives with experience in the P–TECH model, and representatives of proposed P–TECH schools shall determine the optimal funding strategy for P–TECH schools.

The Work Group shall report on the following:

1. The status of the planning grants and the implementation of P–TECH schools in the State, including whether any of the planning grants resulted in proposed P–TECH schools that are ready to be implemented in accordance with the requirements of § 7–1701 of the Education Article;

2. The number of credits a P–TECH student is expected to take from both the P–TECH school and the institution of higher education in each year of the program;

3. The number of students expected to graduate with both a high school diploma and an associate's degree or Commission–approved certificate in each cohort of a P–TECH school;

4. Whether P–TECH students should be included in the Maryland public school enrollment count in years five and six of the program, or in any year or semester during which the majority of credits are being taken from the institution of higher education;

5. If a P–TECH student should be included under item four (4) of this subsection, a justification;

6. A framework for funding the dual enrollment costs of P–TECH students that includes:
    a. the requirements of the P–TECH model to pay for student transportation, fees, and books in addition to tuition; and
    b. a comparison and explanation for the difference, if any, from current law provisions relating to dual enrollment;

7. An examination of P–TECH schools in other states; and

8. Recommendations for legislation to be introduced during the 2017 Legislative Session including:
    a. a justification for, and a reasonable division of, P–TECH model costs among the State, school system, higher education and, in alignment with the P–TECH model, industry partners of the P–TECH schools, while maximizing opportunities to minimize State costs; and
    b. whether additional P–TECH schools are ready to be implemented based on the status of the planning grants and, if so, where they may be located.

IV.   Description of the Work Process

The P-TECH Stakeholders Work Group was convened on September 15, October 4, and October 19, 2016. Meetings were conducted at MSDE as well as through teleconference. All materials and meeting minutes were also posted to the Maryland P-TECH website at: http://www.marylandpublicschools.org/programs/Pages/ptech/index.aspx

The first meeting on **September 15, 2016** provided an opportunity to share the history of the P-TECH model developed in New York in partnership with IBM. Sally Scott Marietta, Program Manager at IBM provided an overview of the model and an update on the growth of P-TECH schools across the country. In the 2016-2017 school year, there are more than 60 P-TECH schools in operation or in the planning phase. The Work Group also reviewed legislation and funding models for P-TECH schools in New York and Colorado. Additional information regarding implementation of the P-TECH model is provided through the national P-TECH website at: http://www.ptech.org/.

The Work Group also reviewed the Maryland P-TECH legislation and planning grant requirements. A panel of representatives from Maryland P-TECH schools, including Baltimore City and the Eastern Shore, shared their progress to date. Baltimore City Public Schools opened two (2) P-TECH schools in August, with 100 students enrolled in the first cohort, with 50 students in *P-TECH@Carver* and 50 students in *P-TECH@Dunbar*. Representatives from the P-TECH school on the Eastern Shore also shared their progress in terms of identifying college pathways offered at Chesapeake College and potential challenges in implementing a regional P-TECH, such as providing transportation and identifying employer partners to provide mentoring and internship opportunities for all students.

The second meeting of the Work Group on **October 4, 2016** included a more detailed review of costs associated with P-TECH requirements, such as career exploration and mentoring, extended school year, and student support services. The P-TECH Act of 2016 includes a requirement that a Maryland P-TECH school must reserve at least 50% of its available space for students who meet the free and reduced-price meals (FARM) income criteria.

The Work Group reviewed the Department of Legislative Services Fiscal and Policy Note for SB 376 **(Attachment A)** and discussed the variations across school systems in determining estimates for these costs, such as transportation and facilities. Similarly, the cost of college tuition, fees and books will vary by college, depending on the current agreements for dual enrollment. The Work Group also discussed current funding options through dual enrollment provisions and formula funding for K-12 schools and community colleges. Kristy Michael, Chief Operating Officer at MSDE reviewed current funding sources for local school systems. Geoff Newman, Assistant Secretary of Finance and Administration at MHEC provided an overview of the John A. Cade Formula for Aid to Maryland Community Colleges.

The third meeting of the Work Group on **October 19, 2016** included a review of recommendations and clarification on funding model options. In preparation for the meeting, members of the Work Group also examined other models of early college high schools, such as the Prince George's Community College Academy of Health Sciences and the Bard High School Early College in Baltimore. The Work Group confirmed estimates for costs, considerations for implementation, and the rationale for each recommendation in the Maryland P-TECH model.

V.   Findings of the Stakeholder Work Group

The P-TECH Stakeholders Work Group addressed each item as required by its charge. A summary of each is provided below and informed the recommendations included in this report.

1. The status of the planning grants and the implementation of P–TECH schools in the State

In January 2016, Governor Hogan announced the launch of P-TECH in Maryland, with planning grants for six (6) new P-TECH schools. Local school systems partnered with community colleges and local businesses to provide a clear pathway from high school to college and careers. P-TECH schools identified potential career pathways and associate degree options in STEM career fields.

Two (2) P-TECH schools opened in Baltimore City in the 2016-2017 school year. The remaining P-TECH schools will open in the 2017-2018 school year. The chart below shows the planning grant schools, business partners, degree pathways, and cohort size for each P-TECH school.

LSS/CC	Industry Lead	Career Pathways (A.A.S. degree)	9th Grade Cohort
Baltimore City Public Schools – Baltimore City Community College	*P-TECH@Dunbar* in partnership with Johns Hopkins Hospital, Kaiser Permanente, and University of Maryland - Baltimore	Health Information Technology Respiratory Care Surgical Technology	Fall 2016 50 students
Baltimore City Public Schools – Baltimore City Community College	*P-TECH@Carver* in partnership with IBM	Cyber Security Computer Information	Fall 2016 50 students
Allegany County Public Schools – Allegany College	Allegany in partnership with Western MD Health Systems	Cyber Security Computer Science	2017-2018 SY 20 students
Queen Anne's, Talbot, and Caroline County Schools (Upper Eastern Shore) – Chesapeake College	*P-TECH@Chesapeake College* in partnership with University of MD Cooperative Extension Service	Business Management Applied Technologies - Engineering Technology	2017-2018 SY 20 students
Prince George's County Publics Schools – Prince George's Community College	2 P-TECH Schools (tbd)	Health Information Management Hospitality Services Management	2017-2018 SY 50 Students (25 each school)

2. Expected number of credits a P-TECH student completes in high school and college

Each P-TECH school includes multiple pathways for students to earn a college degree and work experience in their chosen career field. While students are provided support for up to six years to complete the degree, many students will complete the degree requirements in four or five years. Each P-TECH school must develop for each pathway a *P-TECH Scope and Sequence* for a four-year, five-year, and six-year plan. A sample *P-TECH Scope and Sequence* is included in **Attachment B**. Unlike other early college programs, P-TECH schools must be open admission, without selective criteria or barriers to enrollment for any student interested in the identified career pathways.

Based on the experiences of the first P-TECH school in Brooklyn, NY, it is estimated that 12%-15% of students will complete the degree requirements in four years, 13%-25% will complete in 5 years, and 60%-75% will need up to six years of support to complete the Associate degree. For budgeting projections, it is estimated that 25% of the P-TECH students will complete in five years or less and 75% will remain enrolled for a full six years. The chart below shows the variation in the number of college high school and college courses a P-TECH student takes depending on their progress. As part of the P-TECH model, all students must take college courses starting no later than 10th grade.

Pathway *Scope & Sequence*		Number of High School and College Courses by Grade (HS/College)					
		9th	10th	11th	12th	Year 5	Year 6
4-Year	(12%)	5/1	4/5	2/6	2/8		
5-Year	(13%)	5/0	4/3	2/5	2/6	2/6	
6-Year	(75%)	5/0	3/2	2/3	2/4	2/5	2/6

Regardless of the rate of progress, all P-TECH students generally complete 60 credits, or 20 college courses. Funding considerations for P-TECH students include the number of terms of enrollment, fees, and tuition rates for full-time versus part-time students. Funding for community colleges is calculated using a Full Time Enrollment (FTE) credit load of 30 credits annually (i.e., total FTE enrollment is equal to the total number of credits hours offered annually divided by 30). In the P-TECH model, students generally do not reach a full-time college course load while in high school.

3. Expected number of students to graduate and earn a degree

The first P-TECH school in Brooklyn, NY has not yet completed a full 6-year cycle. However, 78% (76 out of 97) of students from the August 2011 cohort have graduated with an AAS degree or are still enrolled in college. For the Maryland P-TECH schools, it is expected that at least 85% of P-TECH students will graduate with both a high school diploma and an associate's degree or Commission-approved certificate designated for their career pathway (within six years). The cohort graduation rate for other Maryland early college high schools (with selective admissions) is 91%. The following table shows the estimated number of graduates and degrees for the full implementation cycle for the pilot schools in Maryland.

	2017	2018	2019	2020	2021	2022	2023	2024
PTECH Schools	2	6	6	6	6	6	6	6
Total Enrollment	100	340	580	820	1,135	1,265	1,265	1,265
Graduates/Degrees				22	98	184	216	216
HS Diploma Only				3	7	12	15	25

4. P-TECH students in the Maryland public school enrollment for Year 5 and Year 6

P-TECH students are included in the Maryland public school enrollment count as long as they are attending and receiving services from the Local School System. In Year 5 and Year 6 of the P-TECH pathway, all students will be taking the majority of their courses through the college. However, high school courses may include coordination of internships or work-based learning opportunities and remediation for struggling students.

In Maryland, each LSS has an existing agreement with local institutions of Higher education regrading dual enrollment. As an example, the table to the right shows the current calculations for tuition and fees at Chesapeake College.

In this example, the college has reduced tuition to 75% for dual enrollment high school students. The remaining tuition and fees for one (1) three-credit course is $400.

Under the current dual enrollment provisions, local school systems operating a P-TECH school would be required to cover the tuition and fees for all 20 courses.

This is estimated to range in cost per student from $400 to $3,200 per year. The total per student investment is $8,000 over the course of the degree requirements.

Credit Class Tuition and Fee Schedule effective Summer 2016

All Students (except Dual Enrollment)	Resident*	Out-of-County	Out-of-State
Tuition (per credit hour)	$120.00	$188.00	$265.00
Consolidated Fee (per credit hour)	$35.00	$35.00	$35.00
Registration Fee (per Registration Transaction)**	$10.00	$10.00	$10.00
Capital Improvement Fee (per Registration Transaction***)	$15.00	$30.00	$30.00

Dual Enrollment (HS Junior/Senior)[1]	Resident only
Tuition (per credit hour)	$90.00
Consolidated Fee (per credit hour)	$35.00
Registration Fee (per Registration Transaction)***	$10.00
Capital Improvement Fee (per Registration Transaction***)	15.00

5.   Justification for P-TECH students in public school enrollment for Year 5 and Year 6

P-TECH schools provide services and supports to students in addition to the opportunity for dual enrollment or early college credit. Every P-TECH student must be provided support services as long as s/he persists in the degree program (up to year six), including:

- Assigning a P-TECH School Administrator and other staff as needed, to ensure program implementation and college and career readiness of all students;
- Coordinating with college partners to support students completing the degree; and
- Providing industry mentoring and internships, especially in years four to six.

The P-TECH Act of 2016 authorizes state per pupil funding for the first two P-TECH schools in Baltimore City and planning grants for the six (6) pilot sites. The Act eliminates the P-TECH specific dual enrollment provisions, with the expectation that the P-TECH Stakeholder Work Group provide recommendations regarding the optimal funding strategy for P-TECH. The Act specifies costs for operating a P-TECH school to include:

I.   Additional staffing to implement the P-TECH curriculum;
II. Instructional support services, such as professional development, curriculum materials and time for planning and coordination;
III. Extended day programs; and
IV. Student support services, such as counseling, tutoring, and career exploration.

Beginning in Fiscal Year 2017, the state shall distribute P-TECH school grants to county Boards of Education, proportionately based on enrollment in each P-TECH school. The P-TECH school grants shall be used for P-TECH school costs (previously listed). In Fiscal Year 2017, the amount provided for each P-TECH student is $520. The state contribution is 50% for each P-TECH student, with the remaining $260 provided at the local level.
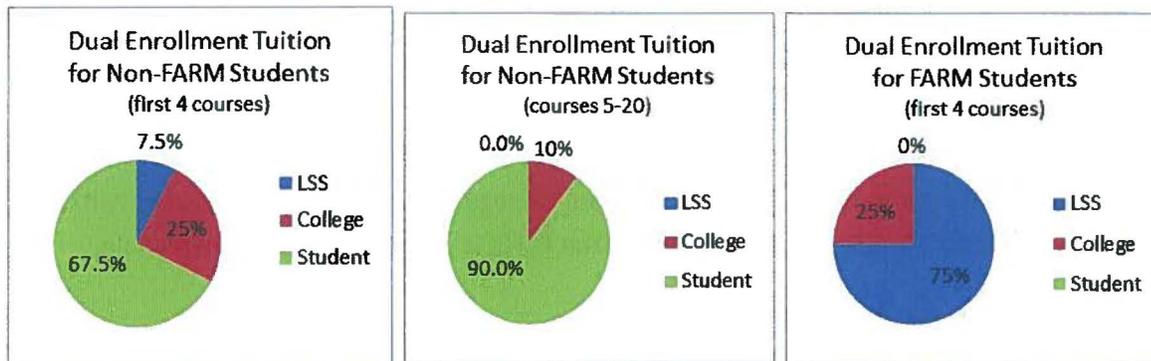
6. Framework for funding dual enrollment in Maryland community colleges

Current dual enrollment funding is a combination of reduced tuition costs by the community college, local school system funding, and payment by student/parent for reimbursement of tuition and additional fees. P-TECH schools must include a community college partner and identify specific Associate degree programs as the P-TECH "pathway." As such, P-TECH students complete a clearly defined sequence of college courses leading to the degree. This includes a 60-credit degree program, generally including 20 college courses.

A public institution of higher education may not charge tuition to a dually enrolled student, under the College and Career Readiness and College Completion Act of 2013. However, the Act is silent on fees and other costs, such as registration and books. Additional fees may be covered by the LSS or the student in the current provisions. Local Boards of Education pay the lesser of <u>tuition costs</u> for dually enrolled public secondary school students as follows:

- Category 1: First four courses – Community colleges charge 75% of tuition or five (5)% of the per pupil foundation amount.

- Category 2: Five or more courses – Community colleges charge 90% of tuition or five (5)% of per pupil foundation amount.

- Category 3: For Agreements established prior to July 1, 2013: If lesser than categories one or two, the agreement is the basis for tuition.

- Local boards may recoup costs from students as follows: First four (4) courses – Boards may charge students a fee not to exceed 90% of the amount paid for tuition.

- Five (5) or more courses – Boards may charge students a fee not to exceed 100% of the amount paid for tuition.

- Boards must waive tuition fees for students who are eligible for Free and Reduced Price Meals (FARM).

The charts below show the current distribution of cost for dual enrollment tuition. Additional costs, including fees, books and related course materials are not included.

Dual Enrollment Tuition for Non-FARM Students (first 4 courses): 7.5% LSS, 25% College, 67.5% Student

Dual Enrollment Tuition for Non-FARM Students (courses 5-20): 0.0% LSS, 10% College, 90.0% Student

Dual Enrollment Tuition for FARM Students (first 4 courses): 75% LSS, 25% College, 0% Student

7. Additional early college enrollment programs and other state P-TECH models

The Maryland Higher Education Commission administers an Early College Access Grant for dually enrolled students, as well as a grant program for part-time undergraduate students, including dually enrolled students. Under both programs, grant recipients must demonstrate financial need according to Commission-established criteria. The Commission allocates Early College Access Grant funds to an institution based on the number of dually enrolled students receiving credit for courses completed at the institution. The institution then distributes the grant awards to eligible students.

Funds under the part-time undergraduate grant program are allocated by the Commission to each institution based on the number of undergraduate part-time students who demonstrate financial

need. The institution then distributes the grant awards to eligible students. Institutions may use up to 10% of the part-time grant allocation to provide grants to students who are dually enrolled.

The Stakeholder Work Group examined budgets and funding for several other Early College High Schools (ECHS), including the New York and Colorado P-TECH schools, Prince George's Community College Academy of Health Sciences, Bard High School Early College (HSEC), and the current Maryland P-TECH pilot schools. Total costs and per pupil funding formulas vary by state and school system. In addition, the number of students per school, or cohort size has a significant impact on cost. In general, additional per student costs range from $6,135 to $3,906 per year for a P-TECH student, above the ADA allotment (per pupil funding amount).

	School Location	Total Number of Students	Total Costs per Year	Per Pupil Cost per Year
New York P-TECH	School-with-in-school	438	$7,030,148	$16,050
Colorado P-TECH	Varies	Varies	N/A	$ 6,135*
Academy of Health Sciences at PGCC	Prince George's Community College	400	$4,800,000	$12,000
Baltimore Bard HSEC	School-with-in-school	500 (2018-19)	$ 977,000	$ 3,906*

* costs are for early college activities only, in addition to general formula high school funding

In New York City P-TECH Schools, college tuition is reduced or waived for P-TECH students. A more detailed breakout of the New York P-TECH School costs is available through the New York City Public Schools website at: http://schools.nyc.gov/AboutUs/funding/schoolbudgets. In Colorado, the per pupil allocation for P-TECH is the same regardless of school size or location. All models expect schools to maximize funding streams. No early college models include the use of Pell Grants for high school students. Students participating in the P-TECH program are not Pell-eligible.

7. **Recommendations for legislation**

Recommendations for legislation to be introduced in the 2017 legislative session are discussed in the next section, including a) a justification for, and a reasonable division of, P-TECH model costs among the State, school system, higher education, and industry partners and b) whether additional P-TECH schools are ready to be implemented based on the status of the planning grants.

VI.   Work Group Recommendations and Justification

College costs can be a barrier to higher education attainment, and the P-TECH model removes that obstacle, providing students with a seamless pathway to college and career. An additional condition for Maryland P-TECH schools includes the requirement that at least 50% of students served are eligible for Free or Reduced-Priced Meals (FARM). There is a current funding gap between current tuition costs, fees, and related expenses and the LSS ability to cover these for all students.

Current State funding includes P-TECH Planning Grants ($600,000 in FY2016). P-TECH schools require significant planning prior to launch among all the partners involved. P-TECH schools are required to establish a Memorandum of Understanding (MOU) between the school system, community college, and business partners. Each partner must contribute to the operation of the P-TECH school. The chart below includes the support provided by each partner.

LSS Costs Additional services for P-TECH students are provided in Years 1-6, including facilities and school-year transportation	Community College Additional services include coordination of pathways and supporting students through degree completion	Business Partners Provides alignment to career pathways and degree programs and supports student career development
• LSS share of P-TECH Grants is 50% of per student amount of $520 or $260 • Additional facilities costs for the newly established schools, and expanded transportation for the magnet program • Tuition and fees for all college courses (no cost to student)	• *College Liaison* must be identified for each P-TECH school to coordinate student progression • Coordination of student registration, testing, and access to college resources as needed (in partnership with LSS)	• *Business Liaison* must be identified for each P-TECH school to facilitate mentors and on-going contact with students • Identify and coordinate internship opportunities related to career pathways

The P-TECH Stakeholder Work Group proposes two options for consideration for the optimal funding of the Maryland P-TECH schools. Each option is based on the P-TECH model principles of a no-cost degree for students supported by a public-private partnership. The Local School System, Community College, and Industry partners all contribute to the success of each student as they prepare and successfully transition to a STEM career.

Option A: Full Funding for All Years of High School and College Enrollment

Option B: Graduated Formula for Years 5 and 6 of P-TECH Schools (based on FTE)

State funding sources are described below. For each option, additional conditions are included with the recommendations for funding.

	K-12 Formula Provides State per pupil funding for general education requirements while enrolled in Local School System	John A. Cade Provides State funds linked to full-time equivalent enrollment in the Community College	P-TECH Grant Provides State funds for additional P-TECH services, such as extended year, student support services, tuition, fees, and transportation
A	• Full student funding in Years 1-6, regardless of the number of college credits earned (up to 20 courses).	• FTE funding in Years 1-6, based on the number of college credits	• Per student funding in each year of the program to include amount for supplemental services ($1,500) plus tuition and fees costs (up to $3,161)

B	• Reduced student funding in Years 5-6 based on high school credits earned (.5 or .25 FTE)	• FTE funding in Years 1-6, based on the number of college credits	• Per student funding in each year of the program to include amount for supplemental services ($1,500) plus half of expected tuition and fees ($1,580)

There is a two-year lag in calculation of FTE, so P-TECH enrollment will not include actual expenses until full implementation (year six). Additional considerations include a cap on the number of college courses per year for P-TECH students, a cap on the number of students in P-TECH schools (to limit overall costs), and incentives for having students complete the degree requirements in four or five years.

The goal of the Maryland *College and Career Readiness – College Completion Act* is to align and strengthen Maryland's P-20 system of education and workforce development. Increasing degree attainment and aligning to high-skill/high wage STEM careers serves our students, families and our economy. The P-TECH model addresses the skills gap and college completion rates directly.

The P-TECH Stakeholder Work Group recommends fully funding the P-TECH program by authorizing State per pupil funding for P-TECH schools through local school systems, community colleges, and the P-TECH State Grant, including foundation funding for students who may need support in year five and year six.

Additional considerations for funding P-TECH schools include:
- Requiring P-TECH schools to reserve at least 50% of its available space for students who meet the FARM income criteria;
- Requiring LSS to use existing dual enrollment provisions to cover the cost of the first four college courses. This exceeds the current dual enrollment provisions to include all tuition and fees, regardless of student FARM status; and
- Award State P-TECH Grants in the amount of $1,500 per P-TECH student to support LSS in providing additional services for P-TECH students through all years of enrollment.

Several LSS have expressed interest in creating a P-TECH school. In the first round of funding for planning grants, two additional applications were received. Since that time, three other school systems have expressed an interest in the next round of planning grants, if available. All six pilot sites are expected to be open by September 2017.

FISCAL AND POLICY NOTE
Third Reader - Revised

Senate Bill 376   (The President, *et al.*) (By Request - Administration)

Education, Health, and Environmental Affairs   Ways and Means and Appropriations
and Budget and Taxation

Pathways in Technology Early College High (P-TECH) Schools Act of 2016

This Administration bill establishes State-funded Pathways in Technology Early College High (P-TECH) Schools, which provide a course of study leading to a high school degree and an associate's degree or approved certificate in six years. Beginning in fiscal 2017, for P-TECH schools that execute a memorandum of understanding (MOU) meeting specified conditions by July 1, 2016, the State must provide $260 per P-TECH student as grants to local boards of education. By December 1, 2016, the Maryland State Department of Education (MSDE), in collaboration with specified stakeholders, must determine the optimal structure and funding strategy for P-TECH schools in Maryland. MSDE and the Maryland Higher Education Commission (MHEC) must jointly report on whether certain students should be included in the public school enrollment count, a framework for funding dual enrollment costs, and recommendations for legislation in 2017, among other items.

The bill takes effect June 1, 2016.

Fiscal Summary

State Effect: In FY 2017, general fund expenditures increase by $626,000 due to P-TECH planning and school grants; the FY 2017 State budget includes funding for these purposes. General fund expenditures for school grants escalate each year as additional students enroll, with the Baltimore City Community College (BCCC) funding formula increasing beginning in FY 2020. The fiscal impact is fully reflected in general fund expenditures by FY 2024. **This bill establishes a mandated appropriation beginning in FY 2018.**

(in dollars)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Higher Ed Rev.	$0	$25,100	$90,300	$305,300	$801,500
GF Expenditure	$626,000	$52,000	$78,000	$183,300	$425,000
Higher Ed Exp.	$0	$25,100	$90,300	$305,300	$801,500
Net Effect	($626,000)	($52,000)	($78,000)	($183,300)	($425,000)

Note:() = decrease; GF = general funds; FF = federal funds; SF = special funds; - = indeterminate effect

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Local Effect: Only two schools, both in Baltimore City, meet the MOU requirements under the bill; additional legislation is needed in the 2017 session to expand State-supported P-TECH schools. Expenditures for Baltimore City Public Schools (BCPS) increase by $26,000 in FY 2017 for P-TECH school costs, assuming the local school system is responsible for one-half of the P-TECH school grant; costs increase to $156,000 in FY 2022 and annually thereafter when the students are fully phased in. Beginning in FY 2018, BCPS expenditures for P-TECH students enrolled in BCCC increase by *up to* $19,700, reflecting current law provisions for dual enrollment. Absent further legislation, costs increase to $630,800 in FY 2022 and annually thereafter when the students are fully phased in.

Small Business Effect: The Administration has determined that this bill has minimal or no impact on small business (attached). The Department of Legislative Services (DLS) concurs with this assessment. (The attached assessment does not reflect amendments to the bill.)

Analysis

Bill Summary:

Optimal Structure and Funding Strategy

MSDE, in collaboration with stakeholders (including MHEC, the Maryland Association of Community Colleges, private-sector representatives with experience in the P-TECH model, and representatives of proposed P-TECH schools) must determine the optimal funding strategy for P-TECH schools in Maryland. By December 1, 2016, MSDE and MHEC must jointly report to specified committees of the General Assembly on:

- the status of the planning grants and implementation of P-TECH schools in Maryland, including whether any of the planning grants resulted in proposed P-TECH schools that are ready to be implemented;
- the number of credits P-TECH students are expected to take under the P-TECH model from both the high school and the higher education institution in each year of the program;
- the number of students expected to graduate from high school with both a diploma and either an associate's degree or an MHEC-approved certificate in each cohort attending a P-TECH school;
- whether P-TECH students should be included in the Maryland public school enrollment count in years five and six of the program, or in any year or semester during which the majority of the credits are being taken from the higher education

institution, and justification for any determination that P-TECH students should continue to be included in the enrollment count;

- a framework for funding the dual enrollment costs of P-TECH students, which includes the requirements of the P-TECH model to pay for student transportation, fees, and books in addition to tuition, including consideration of the dual enrollment provisions in current law; and
- an examination of P-TECH schools in other states.

Further, MSDE and MHEC must make recommendations for legislation to be introduced in the 2017 legislative session. Specifically, the recommendations must include (1) a justification for, and a reasonable division of, P-TECH model costs among the State, school system, higher education, and, in alignment with the P-TECH model, industry partners of the P-TECH schools, while maximizing opportunities to minimize State costs and (2) whether additional P-TECH schools are ready to be implemented based on the status of the planning grants and, if so, where they may be located.

P-TECH Schools and Establishment by MOU Process

A P-TECH school is a public secondary school selected by MSDE that partners with an institution of higher education that has received a certificate of approval from MHEC. To meet the definition in the bill, a P-TECH school also has to have submitted an MOU to MSDE by March 15, 2016, and must execute an MOU meeting specified conditions by July 1, 2016. Specifically, a P-TECH school must be established through an MOU executed between one or more industry partners, one or more institutions of higher education, and a local board of education (or a consortium of local boards of education that have an agreement to operate a P-TECH school serving students in the local school systems that are part of the consortium). The MOU must include the following provisions: (1) substantive mentoring of P-TECH students; (2) at least one paid summer internship of at least six weeks duration per student; and (3) P-TECH students are first in line for consideration of a job at the industry partner after graduation.

A P-TECH school may be established as a school within a school. A P-TECH school must reserve at least 50% of its available space for students who meet the free and reduced-price meal (FRPM) income criteria.

P-TECH Planning and School Grants

Six planning grants are authorized for State-funded P-TECH schools. No more than two planning grants may be awarded in any jurisdiction.

"P-TECH school costs" are defined as the following costs of operating a P-TECH school and offering and administering a P-TECH curriculum:

- additional staff for the P-TECH school to implement the P-TECH curriculum;
- instructional support services such as professional development for staff for the P-TECH curriculum, P-TECH curriculum materials, additional teacher planning, and additional coordination;
- extended day programs; and
- student support services such as counseling, tutoring, student career exploration, and student events relating to P-TECH curriculum and dual enrollment.

Beginning in fiscal 2017, and in each fiscal year thereafter, the State must distribute P-TECH school grants to local boards of education for a P-TECH school within their jurisdiction. The grants must be distributed proportionately based on enrollment in each P-TECH school. The P-TECH school grants must be used for P-TECH school costs. In fiscal 2017, and in each fiscal year thereafter, and in addition to any other amount provided by law, the amount provided for each P-TECH student is $520. The State contribution is 50% for each P-TECH student, or $260; the bill does not specify the source for the other 50%. The estimated number of students likely to be funded by P-TECH school grants, based on the two schools in Baltimore City, is shown in **Exhibit 1**.

Exhibit 1
Estimated Number of P-TECH Students Funded by the State
Fiscal 2017-2022

Fiscal Year	# of Students	Estimated State Appropriation for P-TECH School Costs
2017	100	$26,000
2018	200	52,000
2019	300	78,000
2020	400	104,000
2021	500	130,000
2022	600	156,000

Source: Department of Legislative Services

MSDE must adopt regulations to carry out the bill that include information related to verification of specified metrics by the school district.

Dual Enrollment

The bill is silent on how dual enrollment will be handled.

Annual Reporting Requirement

By December 1 each year, MSDE, in consultation with MHEC, must report on the implementation of P-TECH schools in Maryland including:

- the number of students enrolled in each P-TECH school;
- the industry partners associated with each P-TECH school;
- the curriculum created for each P-TECH school;
- the performance of the P-TECH students on federal and State assessments;
- the number of P-TECH students dually enrolled in a community college; and
- the number of P-TECH students graduating from the school, receiving an associate's degree or commission-approved certificate, and the year in which they graduated and received the degree or certificate.

Locally Established P-TECH Schools

The bill may not be construed to prohibit a local board of education (or consortium of such boards) from establishing a P-TECH school without the per pupil funding established under the bill. A P-TECH school established by a local board of education (or a consortium of such boards) not funded under the bill is nevertheless subject to the definition of a P-TECH school in the bill, which incorporates the MOU requirements.

Current Law:

Funding Mechanism for K-12, BCCC, and Local Community Colleges

The Bridge to Excellence Act of 2002 simplified the State's school financing structure by eliminating a large number of small categorical aid programs. The vast majority of State aid is now distributed to local school systems through formulas that are based primarily on student enrollments (including enrollments of three student populations that are at risk of falling behind academically) and local wealth. Thus, State aid to local school systems increases for each full-time equivalent student (FTES) included in the funding formula. FTES enrollment is calculated using a September 30 student count from the prior fiscal year.

The Senator John A. Cade Funding Formula bases per pupil funding for local community colleges on a set statutory percentage of current year State appropriations per FTES at

selected public four-year institutions of higher education. The resulting community college per student amount is multiplied by the number of FTES enrolled in the colleges in the second preceding fiscal year to identify a total formula amount. Likewise, BCCC receives funding through a similar funding formula; however, since it is a State-operated community college, BCCC receives more funding per FTES than local community colleges.

Dual Enrollment Funding Mechanism for Students

A public institution of higher education may not charge tuition to a dually enrolled student. For each dually enrolled student who is enrolled in a public school in a jurisdiction, the local board of education must pay, for *up to four* courses in which the student is enrolled, while a student is in a public *secondary* school in the State:

- for a public four-year institution of higher education, 75% of the cost of tuition; and
- for a community college, the lesser of 5% of the target per pupil foundation amount or 75% of the cost of tuition.

For each course *in excess of four* in which a dually enrolled student is enrolled, the local board of education must pay:

- for a public four-year institution of higher education, 90% of the cost of tuition; and
- for a community college, the lesser of 5% of the target per pupil foundation amount or 90% of the cost of tuition.

For up to four courses, a local board of education may charge a dually enrolled student a fee of up to 90% of the amount paid by the local school system to the higher education institution for the course. For each course in excess of four, a local board of education may charge a dually enrolled student up to 100% of the amount paid by the local school system to the higher education institution for the course. A local board of education must consider the financial ability of students when setting fees and *must waive* the fee for students who are eligible for FRPM.

If there was an agreement before July 1, 2013, between a public school and a public institution of higher education in which the public institution of higher education charges less than 75% of the cost of tuition to a dually enrolled student, the local board must pay the cost of tuition under the agreement.

Background:

P-TECH Model

P-TECH schools are free public schools grades 9 through 14 that integrate high school, college courses, and the workplace. The result is a seamless pathway that enables students to graduate with a high school diploma, an associate's degree, and relevant professional experience. Upon graduation, students can choose to continue their studies at a four-year school or to enter the workforce with industry connections and workplace skills. One of the key elements that distinguishes P-TECH from other concurrent enrollment programs that lead to college credits, or even an associate's degree, is the partnership with industry. One of the goals of P-TECH schools is for students to earn an associate's degree *and* workplace skills that are aligned with industry needs and expectations.

P-TECH programs are designed as a six-year sequence of high school and college courses that a student must complete to earn a high school degree and an associate's degree. All students move through the same sequence of courses but, depending on their strengths and needs, they may move through them at different rates. Some students may accelerate through the program in as few as four years, while others may take the entire six years to complete their degree. The P-TECH programs are designed to be open to all interested students based on available space, with no screening prior to enrollment.

The first such grades 9 through 14 school, Pathways in Technology Early College High School (P-TECH), opened in September 2011, in Brooklyn, New York, as a collaboration between the New York City Department of Education, the City University of New York, New York City College of Technology ("City Tech"), and IBM.

P-TECH Development Guide

In its first year of implementation, P-TECH Brooklyn published a guidebook titled <u>STEM Pathways to College and Careers Schools: A Development Guide,</u> which describes how to develop a P-TECH school and the P-TECH model.

The guidebook lays out the core components of P-TECH, which are as follows:

- focus on early college;
- focus on careers;
- focus on personal pathways;
- extended learning time; and
- specialized staffing.

According to the guide, beginning in grade 9, students focus on the pathway required to graduate with an associate's degree in six years. In regards to careers, students participate in an ongoing, sequenced Workplace Learning curriculum informed by current and future industry standards that includes career goals, mentoring, guest speakers, workplace visits, and internships. Academic pathways are personalized to the individual needs and performance of students. In addition to extending college-level coursework into what has conventionally been the high school years, the school day and year are also extended beyond the traditional schedule to include even more individual support for students. In order to ensure that the model is adequately supported, both the college and industry partners provide a full-time position to the school.

P-TECH in Other States

Since the P-TECH Brooklyn opened in 2011, the P-TECH model has spread rapidly throughout the country and to Australia. According to the *Washington Post*, as of fall 2015, there were 40 P-TECH schools operating in three states – Connecticut, Illinois, and New York. Colorado and Rhode Island have both recently passed legislation to develop P-TECH schools, and it is anticipated that there will be at least 60 P-TECH programs in operation by fall 2016.

P-TECH in Maryland

In November 2015, Governor Hogan announced that he would like to open four P-TECH programs in Maryland in 2016. His goal at the time was to have two of them located in schools in Baltimore City and two at schools in rural areas of the State. The fiscal 2017 State budget includes $104,000 for P-TECH school grants and $600,000 to provide funds for planning grants to establish six (rather than four as originally proposed by the Governor) P-TECH schools in Maryland.

On March 9, 2016, MSDE issued a revised request for proposals (RFP) for school systems in Western Maryland (Allegany, Garrett, or Washington counties) and the Eastern Shore (nine counties, including Cecil), with a goal of enrolling students beginning in fall 2017 (fiscal 2018). According to the RFP, local school systems are eligible for the planning grant. Eligible systems must partner with one or more higher education institutions and an employer. Proposals are due on April 15, 2016, with selection occurring by mid-May. According to the MOU submitted March 13, 2016, IBM, Johns Hopkins Health System, Kaiser Permanente, and the University of Maryland, Baltimore will partner with BCCC and BCPS to establish two P-TECH schools in Baltimore City. Similarly, two planning grants are authorized for Prince George's County to determine whether P-TECH schools should be established in Prince George's County Public Schools.

State and Local Fiscal Effect: The bill has numerous impacts on the State general fund and on BCPS and BCCC – because the bill only applies to BCPS and BCCC, and only if they fully execute an MOU by July 1, 2016. Further legislation will be required to allow additional P-TECH schools to receive State P-TECH grants. Thus, tuition and fees increase at BCCC (which is funded by the State), and the BCCC funding formula is affected through additional enrollment. For the purposes of this estimate, DLS assumes that P-TECH enrollment increases by 50 students for each of the two P-TECH schools in Baltimore City (or 100 students total each year) from fiscal 2017 through 2022 when enrollment stabilizes at 300 students in each school (or 600 students total) annually. However, the number of students eligible is not specified in the bill and could vary considerably from this estimate.

In the absence of a change to the law in the future, DLS assumes that the current provisions related to dual enrollment apply to P-TECH students (including P-TECH students in the fifth and sixth year of the program). As explained above, local school systems pay, in general, 75% of the cost of tuition for dually enrolled students. For the purposes of this estimate, it is assumed that BCPS pays 75% of tuition for all P-TECH students and does not pay the related fees.

DLS made assumptions about the FTES P-TECH students who would then dually enroll by P-TECH cohort each year, equating to 10% of the P-TECH student count in fiscal 2018 and increasing to 100% of P-TECH students by fiscal 2021. Dually enrolled P-TECH students are counted in the BCCC aid formula two years after they enroll. All of these impacts continue to increase as the number of P-TECH students increases and the students move through the six-year program.

Although a number of assumptions are made for the purposes of this estimate, it must be noted that, under the bill, by December 1, 2016, MSDE in collaboration with other stakeholders must determine the optimal funding strategy for P-TECH schools in the State. MSDE and MHEC must jointly report on a number of topics related to the structure of funding P-TECH schools, including whether P-TECH students should be included in the Maryland public school enrollment count in years five and six of the program, or in any year or semester during which the majority of credits are being taken from the institution of higher education, and a framework for funding the dual enrollment costs of P-TECH students that includes specified elements. The estimate provided in this fiscal and policy note is only made based on assumptions reflecting current law and practice and is not meant to presuppose any decisions or recommendations made in the future regarding the Maryland P-TECH funding model. Actual expenditures and revenues will be based on those recommendations and any related legislation and regulations developed.

State Revenues: For fiscal 2016, annual tuition for BCCC is $2,472 and annual fees are $508; it is assumed that this increases by 3% annually. Thus, in fiscal 2018, annual tuition is estimated to be $2,622 and annual fees are estimated to be $539. Based on the

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assumption that BCPS will pay 75% of tuition for all P-TECH students attending BCCC and 100% of fees will be paid; BCCC revenues increase by $2,506 per FTES.

Accordingly, based on the assumption that BCPS pays 75% of tuition (and 100% of fees are paid) for P-TECH students and the assumption that BCPS P-TECH students will take enough credits to be equivalent to 10 FTES in fiscal 2018, BCCC tuition revenues increase by $25,055 in fiscal 2018. As explained below, BCCC revenues from the BCCC funding formula increase by $79,307 in fiscal 2020. When the students are fully phased in in fiscal 2024, BCCC revenues increase by a total of $3.6 million per year. To the extent more or fewer students are enrolled in BCPS P-TECH schools, BCCC revenues will be greater or lower.

State Expenditures: Based on the assumptions described above, beginning in fiscal 2017, general fund expenditures increase by $26,000 due to P-TECH school grants to pay 50% of P-TECH school costs; the fiscal 2017 State budget includes $104,000 for this purpose. Beginning in fiscal 2020, general fund expenditures further increase by an estimated $79,307 due to the dually enrolled P-TECH students counting in the BCCC funding formula. BCCC expenditures increase due to increased enrollment. The following information and assumptions are used in this estimate.

- Under the bill, the amount provided for each P-TECH student is $520, of which the State must contribute 50%; thus, the State pays $260 per P-TECH student. For the purposes of this estimate, it is assumed that 100 P-TECH students are funded in fiscal 2017. Thus, the State appropriates $26,000 for P-TECH students in fiscal 2017, and the fiscal 2017 budget includes $104,000 for this purpose. For the purposes of this estimate, the number of students funded increases by 100 each year until fiscal 2022 when it stabilizes at 600 a year and the State must appropriate $156,000 for 600 students each year thereafter.

- For the purposes of this estimate, it is assumed that the number of FTES attending BCCC are as shown in **Exhibit 2**. Based on that assumption and the assumptions about dual enrollment costs, beginning in fiscal 2020, general fund expenditures increase by an estimated $79,307, due to the BCCC funding formula from the P-TECH students enrolled in fall 2017 (fiscal 2018). The total State cost for the BCCC funding formula increases by $2.8 million in fiscal 2024 for 600 FTES, when the number of students is fully phased in, in fall 2021 (fiscal 2022).

- It is assumed that BCCC expenditures increase due to additional enrollment.

- To the extent more or fewer students are enrolled in P-TECH schools, general fund expenditures will be greater or lower.

Exhibit 2
Estimated Number of Additional FTES at BCCC and
Funding for those Students through the BCCC Funding Formula
Fiscal 2018-2024

Fiscal Year	BCCC FTES	BCCC Funding Formula
2018	10	
2019	35	
2020	85	$79,307
2021	185	295,024
2022	285	761,337
2023	285	1,758,408
2024	285	2,790,166

Note: BCCC FTES are reflected in the BCCC funding formula two years later.

BCCC: Baltimore City Community College
FTES: Full-time equivalent students

Source: Department of Legislative Services

MSDE and MHEC can determine the optimal funding strategy for P-TECH schools in Maryland and handle the bill's reporting requirements with existing resources.

Local Expenditures: BCPS expenditures increase by $26,000 in fiscal 2017, assuming that the local school system pays the other 50% of the P-TECH school costs (although these costs could be paid with private funds if available). For the purposes of this estimate, it is assumed that the number of BCPS P-TECH students increases by 100 each year until fall 2021 (fiscal 2022), when it is assumed that BCPS will be responsible for $156,000 for 600 students.

As explained above, for the purposes of this estimate, it is assumed that BCPS will pay 75% of the tuition costs for P-TECH students based on the current dual enrollment law. It is further assumed that 100% of the BCPS P-TECH students qualify for FRPM and, therefore, cannot be charged for tuition.

Based on those assumptions, beginning in fiscal 2018, BCPS expenditures for P-TECH students enrolled in BCCC increase by a total of $19,665. This increases to $630,776 in fiscal 2022 for 600 FTES, when the total number of students in the six-year program are fully phased in.

To the extent more or fewer students are enrolled in P-TECH schools, BCPS expenditures will be greater or lower.

Additional Comments: To avoid presupposing decisions about the Maryland P-TECH funding model, additional costs for students to take community college courses are not assigned in this fiscal and policy note, specifically fees, books, and transportation to the community college. Based on a number of assumptions, these costs are estimated to be approximately $2,100 per FTES in fiscal 2018. These costs could be paid by one or some combination of the following: students, the local school system, the State, and private donors. Absent any other decision, it is assumed that these costs will be paid by the individual students, as is the case under the current dual enrollment law. However, charging students runs contrary to the P-TECH model, under which there is no cost to the students. The report due December 1, 2016, must contain recommendations on a framework for funding P-TECH dual enrollment, including that such costs are not paid by students, consistent with the P-TECH model.

Likewise, any impact on State aid for local school systems has not been accounted for in this fiscal and policy note. The report must determine whether P-TECH students in their fifth and sixth years of the program (or in any year or semester in which the majority of credits are being taken from the higher education institution) should be included in the Maryland public school enrollment count. That determination may affect State aid for local school systems with P-TECH students.

Additional Information

Prior Introductions: None.

Cross File: HB 464 (The Speaker, *et al.*) (By Request - Administration) - Ways and Means and Appropriations.

Information Source(s): Maryland State Department of Education, P-TECH, Department of Legislative Services

Fiscal Note History: First Reader - February 24, 2016
md/rhh   Revised - Senate Third Reader - April 9, 2016

Analysis by: Caroline L. Boice   Direct Inquiries to:
                                                   (410) 946-5510
                                                   (301) 970-5510

ANALYSIS OF ECONOMIC IMPACT ON SMALL BUSINESSES

TITLE OF BILL: Pathways in Technology Early College High (P-TECH) Schools Act of 2016

BILL NUMBER: SB0376/HB0464

PREPARED BY: Governor's Legislative Office

PART A. ECONOMIC IMPACT RATING

This agency estimates that the proposed bill:

    _X__   WILL HAVE MINIMAL OR NO ECONOMIC IMPACT ON MARYLAND SMALL BUSINESS

                 OR

    ____   WILL HAVE MEANINGFUL ECONOMIC IMPACT ON MARYLAND SMALL BUSINESSES

PART B. ECONOMIC IMPACT ANALYSIS

This document was created as an example of the structures and supports that need to be put in place to help students succeed in college classes. This document serves as one key tool related to the P-TECH 9-14 model.

SAMPLE SCOPE AND SEQUENCE

Early College Initiative at CUNY
Sample Course Sequence Grades 9-14

KEY: Courses in **bold*** are college credit courses. Courses in blue indicate those college courses common to the two healthcare majors (i.e. the "common trunk" for each major. Courses in green indicate only those college courses to be taken by Community Health majors while courses in orange indicate only those to be taken by nursing majors. Students will decide which major to choose - Community Health or Nursing - by the end of Grade 11. English 110* and English 111* are two examples of courses that are 'dual credit' because these courses meet high school and college graduation requirements.

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P-TECH 9-14 MODEL TOOL

P·TECH 9-14 Model

	Grade 9		Grade 10		Grade 11		Grade 12		Grade 13		Grade 14	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory
English	English	English	English	English	English	English	Expository Writing 110*	Literature & Composition 111*				
Math	Algebra	Algebra	Geometry	Geometry	Algebra 2/ Trigonometry	Algebra 2/ Trigonometry	Probability & Statistics 120*	Math for Allied Health 105*				
Science	Living Environment	Living Environment	Biology	Biology	Anatomy & Physiology 230*	Anatomy & Physiology 240*	Chemistry or Chemistry 105*	Chemistry or Microbiology 310*	Gerontology 101*	Nursing Pharmacology 220*		
Social Sciences			Global History 1 & 2	Global History 3 & 4	U.S. History	U.S. History	Economics	Participation in Government or Political Science 101*				
Arts & Language	Music	Music			Elementary Spanish	Elementary Spanish	Spanish 101*	Spanish 102*				
Healthcare (HS CTE) & Clinicals	Healthcare 1	Healthcare 1	Healthcare Careers 1	Healthcare Careers 2	Healthcare Careers 3	Healthcare Careers 4	Healthcare Policy 1	Healthcare Policy 2	Substance Use & Abuse 214*	Nursing Care of Family I 227*	Nursing Care of Mental Illness 316*	Nursing Trends 320*
Clinicals (WPL)									Fundamentals of Nursing Practice 216*	Nursing Care of Family II 228*	Nursing Care of Adults 317*	Nursing Care of Adults 326*
Other			Interpersonal Relations 103*	Psychology 101*			Nutrition 215*	Sociology 101*	Contemporary Helath Issues 220*	Intro to Community Health Education 110*	Bilingual Issues in Community Health 212*	Field Experience in Community Health 299*
PE	PE	PE/Health	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE
Summer	Summer after 9th Grade: Physical Education 102*		Summer after 10th Grade: Public Speaking 192*		Summer after 11th grade: Psych: Lifespan Development 110*				CAPSTONE EXPERIENCE		CAPSTONE EXPERIENCE	

College Credits	1	College Credits	9	College Credits	11	Community Health Credits	27.0	Community Health Credits	12	Community Health Credits	6
						Nursing Credits	26.5	Nursing Credits	15	Nursing Credits	19

For more information about the P-TECH 9-14 model, please visit ptech.org

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