



# CENTER ON INTERNATIONAL EDUCATION BENCHMARKING

LEARNING FROM THE WORLD'S HIGH PERFORMING EDUCATION SYSTEMS

## MD Working Group 3: CTE Subgroup

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### Models for Maryland CTE: Ontario, Delaware, Massachusetts and BTEC Nationals

Ontario, Delaware, Massachusetts and BTEC Nationals offer models for Maryland to consider. We anticipate inviting representatives from each to present to the CTE subgroup during one of the upcoming meetings. This document includes background summaries of the three systems and the Ed Excel certificates, highlighting the aspects of each that may be useful for Maryland.

#### Ontario Specialist High School Majors

The [Specialist High Skills Major](#) (SHSM) is a ministry-approved program that encourages students in the last two years of high school (grades 11-12) to focus on a career path that matches their skills, interests, and aspirations while meeting the requirements of the Ontario Secondary School Diploma (OSSD). Students receive the SHSM seal on their diploma when they:

- Complete a specific bundle of 8-10 courses in the student's selected field
- Earn valuable industry certifications including first aid and CPR qualifications
- Gain important skills on the job through cooperative education placements

SHSMs are available in the following sectors:

- Agriculture
- Arts and Culture
- Aviation/Aerospace
- Business
- Construction
- Energy
- Environment
- Food Processing
- Forestry
- Health and Wellness
- Horticulture and Landscaping
- Hospitality and Tourism
- Information and Communications Technology
- Justice, Community Safety, and Emergency Services
- Manufacturing
- Mining
- Non-Profit
- Sports
- Transportation

The programs were developed in consultation with representatives of business and industry sectors, unions, sector councils and associations, postsecondary and other educational institutions, training organizations, school boards and other ministries. All programs lead to four postsecondary options – apprenticeship training, college, university and the workplace.

Students take a mix of eight to ten courses that include two cooperative education credits. Cooperative education courses take place in a workplace setting to give students the opportunity to engage in authentic learning and practice their sector-specific knowledge and skills. Depending on local circumstances, students may complete their cooperative education credits through continuing education (after school, at night school), in the summer, or through virtual work opportunities.

Courses also include Contextualized Learning Assignments that use sector-specific activities to meet academic curriculum expectations. CLAs are developed with employer groups to ensure their relevance to the occupation.

Students are also required to have opportunities for “reach ahead” experiences connected with their postsecondary plans. This could include interviewing an employee in the field of work related to the industry; exploring an apprenticeship program; interviewing a college or university student enrolled in a related program of study; attending a college or university course in a related program of study; attending a conference or workshop held by the sector; or completing a dual credit course.

In addition to the SHSM seal on their high school diploma, students studying trades can earn Red Seal endorsements. The [Red Seal](#) program is a Canadian program that uses common standards to assess the skills of tradespeople. Industry is heavily involved in developing the national standard for each trade and the Canadian Council of Directors of Apprenticeship is responsible for oversight of the program. Students who pass the examination earn a Red Seal endorsement, indicating they have demonstrated the knowledge required for the national standard in that trade.

### **Delaware Pathways**

The Pathways to Prosperity Network is a collaboration of regions and states focused on ensuring that many more young people complete high school and attain postsecondary credentials with currency in the labor market. Since joining the Network in 2015, Delaware has made rapid progress in laying the groundwork for a statewide system of grade 9-14 pathways. The state’s commitment to the Pathways work starts at the top with support from the governor. [Delaware Pathways](#) is seen as a key element of helping the state meet its college completion goal (the Delaware Promise) of having 66 percent of the workforce with some sort of postsecondary credential by 2025. Delaware aims to have half of the high school population enrolled in CTE by 2020.

Delaware is notable for its strong statewide governance structure. In addition to the governor's office, a strong state-level team that includes the Department of Education, the Department of Labor, the Delaware Workforce Investment Board, the Delaware Economic Development Office, Delaware Technical Community College, the Delaware Business Roundtable Education Committee, and the Rodel Foundation leads the Pathways work. This representation from across sectors and the commitment of the leadership team—which meets every week via phone—have played a big part in Delaware's ability to get the Pathways work off the ground quickly. The Department of Education takes responsibility for providing technical assistance with programming to ensure quality, consistency and alignment with the labor market.

The 14 state-developed career pathways are based on regional employer hiring needs and growing industry areas like hospitality/tourism and financial services. Employer associations and institutions of higher education define the sequence of college and career experiences students need to enter the industry, allowing for multiple options for career growth and no dead ends. The pathway areas include:

- Allied Health
- Biomedical Sciences
- Cisco Networking
- Computer Science
- Culinary & Hospitality Management
- Energy
- Engineering
- Environmental Science
- Finance
- K-12 Teaching Academy
- Nurse Assisting
- Manufacturing Engineering Technology
- Manufacturing Logistics Technician
- Manufacturing Production Technician

When a student graduates from high school, he/she has a high school diploma, six to 15 college credits, an industry recognized credential, and work experience. For example, students in the two manufacturing technician pathways take a national exam to earn certification in either production or logistics.

These statewide programs are overseen by the Department of Education which provides curriculum support as well as training for teachers to successfully implement the coursework. The teacher professional development is led by Delaware Tech (the community college), Delaware State, and the University of Delaware. Each course requires one week minimum of summer training, plus follow-up time during the school year. Exemplary CTE teachers work with higher education partners and employers to lead the training. Teachers may also have externships with employers.

Delaware Tech serves as the intermediary, coordinating work-based learning experiences for secondary and post-secondary students. The amount of work-based learning time varies by program—for example, allied health provides 400 hours paid work experience and advanced manufacturing provides 240 hours paid work experience. Currently, about 25 percent of all CTE concentrators participate in work-based learning but the state has a goal of expanding that much more widely. The Delaware SPARC initiative—a collaborative effort of the Department of Education, Delaware Business Roundtable Education Committee and United Way of Delaware—is also helping to link employers and high schools across the state.

### **Massachusetts Career Vocational Technical Education**

Massachusetts requires every school district to offer students a career vocational technical education option, either by providing it themselves or as part of a regional career vocational technical high school system. There are 29 stand-alone regional vocational technical (vo-tech) schools in the state. Each school operates as an independent district. The state provides some support across the schools, including curriculum frameworks to ensure that the technical trades incorporate college and career standards.

Programs are offered within 10 clusters:

- Agriculture and Natural Resources
- Arts and Communication
- Business and Consumer Services
- Construction
- Education
- Health Services
- Hospitality and Tourism
- Information Technology
- Manufacturing, Engineering and Technological
- Transportation

When students first enter in ninth grade, they spend four months learning about the various career area options, then, with advising, pick their area of concentration. After that, students alternate weekly between academic classes and technical classes. The voc-tech schools offer AP courses and dual enrollment for college credit. Most students complete the more rigorous MassCore high school curriculum (recommended for students who want to go on to college). In addition, students graduate with post-secondary level, industry-recognized credentials and real work experience.

State law requires that each technical area is supported by a local advisory board that includes industry and higher education partners. The board makes recommendations on technical curricula, equipment purchases, student outcomes, and continuing education and employment opportunities. Each individual career program has its own dedicated team of advisors as well. This ensures that the vo-tech school's programs are state-of-the-art and that the equipment

and curricula are relevant. These close relationships with employers are key to the schools' success.

As an example, [Worcester Tech](#) is one of the state's highest performing schools. Students work in profit-making enterprises, both inside the school and externally. This includes a student-run restaurant, a salon and day spa, a 16-bay automotive service center, a full-service bank with ATM, a state-approved preschool, and veterinary services in partnership with Tufts University.

### **BTECH Nationals**

[BTEC Nationals](#) are career-based qualifications offered by Pearson designed to give students the skills they need to move on to higher education or go straight into employment. They are offered in a 28 subjects including art and design; business; computing; construction; creative digital and media production; engineering; forensic and criminal investigation; health and social care; IT; performing arts; sport; and travel and tourism. They are designed for students ages 16-19 and are the equivalent of A-levels in the UK. The certificates are designed around industry standards. Each course includes teaching and learning materials and internal and external assessments. External assessments consist of tasks in addition to examinations. The qualifications were initially developed by the UK-based EdExcel certifying body and they align with the UK's National Qualifications Framework. Pearson is responsible for regulating quality.

### Suggested Presenters

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### Note:

- Senator Rosapepe is in touch with the Ministry of Education in Ontario and has invited a speaker.
- NCEE can identify a speaker from Pearson's BTEC Nationals.