Policies & Procedures for the Development & Continuous Improvement of Career and Technology Education Programs of Study

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Introduction

Background – A New Model for Career and Technology Education

Maryland's extensive experience in school reform included major changes in career and technology education (CTE). During the past ten years, the Maryland State Department of Education (MSDE), Division of Career and College Readiness (DCCR) created a new model of CTE that prepares students for both employment and further education. Rapid changes in the economy provided the impetus for the establishment of Maryland CTE Programs of Study, which are sequential academic and technical programs guided by industry standards that result in students graduating prepared for employment and further education. Changes in employers' expectations led to the implementation of a system of career development; the use of blended or integrated instruction to ensure that students develop academic and technical knowledge as well as *Skills for Success* as part of their technical programs; and linking learning levels through early college credit. The Department's intent was to ensure students' access to challenging CTE programs that include academic, technical, and workplace skills. In CTE, this has meant designing high-quality processes that contribute to the continuous improvement of the broader system of education for all students.

Considerable progress has been made to update, restructure, and evolve vocational-technical education to become what is now called CTE. The new model of CTE includes the following:

- Career Clusters - Organizing CTE programs of study within 10 broad career clusters designed to provide students with multiple career pathways leading to employment and further education, rather than training in specific job-related skills. The MSDE's 10 career cluster frameworks are described in *Maryland Career Clusters: Restructuring Learning for Student Achievement in a Technologically Advanced, Global Society*. The frameworks were developed by cluster teams including over 350 business and industry partners in collaboration with secondary and postsecondary educators.
- Career Development - Implementing Maryland's K-16 Career Development Framework to provide a sequence of experiences - awareness, exploration, and preparation - to inform students' future educational and career decisions.
- Blended Instruction – Integrating academic, technical, and workplace skills or *Skills for Success* to provide students access to relevant and challenging CTE programs that blend theory and application. The academic skills are based on Maryland's high school state curriculum and core learning goals.
- Early College Credit – Articulating CTE programs that prepare students for employment and further education through a planned, sequential program of study that includes at least the last two years of high school and the first two years of postsecondary education resulting in articulated or transcripted credit.
- Technical Assessments – Using valid and reliable assessments leading to an industry-recognized certificate, license, or other credential to document student performance and inform instructional improvement.
- Maryland CTE Programs of Study – Adopting state-developed CTE programs of study aligned to Maryland's Career Clusters to ensure consistency in program

quality and to facilitate professional development and articulation agreements at state and local levels.
- Accountability - Emphasizing the use of data for school improvement based on the Perkins Core Indicators of Performance and other outcomes such as student academic achievement and technical competence, dual completion, placement and success, and employer satisfaction.

With this model in place, the MSDE is directing attention to the continuous improvement of curriculum, instruction, and assessment through a new, more collaborative process for the development and approval of CTE programs of study.

Overview – A New Process for Developing, Monitoring and Continuously Improving CTE Programs of Study

A core value for this system of career and technology education is a focus on continuous improvement. To ensure that all state approved programs align with this value, DCCR establishes the following policies and procedures:

a. Local school systems (LSSs) shall adopt Maryland CTE Programs of Study aligned to the career clusters by completing specific local information on the proposal provided by MSDE. A current list of Maryland's CTE Programs of Study and sample proposals are available at www.marylandpublicschools.org. When a state program does not exist, CTE Local Directors develop new programs in collaboration with MSDE's career cluster teams and other local school systems.

b. All **new** program proposals are developed following the process outlined in this document. This process includes a requirement that stakeholders develop a plan for the continuous improvement of each program. During the program development process, or once the proposal is approved by MSDE/DCCR, a locally-developed program may be offered for adoption to other local school systems as a Maryland CTE Program of Study.

c. All existing programs undergo an **annual** review for continuous improvement opportunities as CTE Local Directors develop or update the Local CTE Plan for Program Improvement. The basis for such a review involves an examination of program performance data from the Program Quality Index (PQI) and other data available at the local level. CTE Local Directors use the most appropriate, highest quality data that are currently available. Using performance data, the CTE Local Director identifies and prioritizes programs for review and revision in the Local CTE Plan for Program Improvement.

d. As part of the annual verification of List A, the list of approved CTE programs, programs with no enrollment at a participating site for the previous two school years will be flagged for review. If there is no justification for retaining these programs on List A, CTE Local Directors will remove these programs from List A or MSDE will remove them upon confirmation with the CTE Local Director that there is no enrollment.

e. Programs are amended using the revised program amendment process described in this document (see pages 30 through 35).

The purpose of these policies and procedures is to describe the process that local school systems shall follow to develop or amend a CTE program. This document includes the mission and guiding principles that underpin the collaborative process for the development of CTE programs. It defines the process for program development and review and includes the directions for completing a program proposal.

In order to begin the program proposal development process, CTE Local Directors consult with the appropriate DCCR Regional Coordinator listed in Appendix A.

CTE Mission and Principles

A design team consisting of state and local stakeholders developed the mission and guiding principles for CTE programs in Maryland. These statements are the common understandings and agreements among the stakeholders regarding high-quality CTE. They are to be used to guide the development and/or improvement of CTE programs of study.

Mission

Career and technology education programs are developed and implemented to increase the academic, career, and technical skills of students in order to prepare them for careers and further education.

Core Principles

In order to fulfill this mission, the following principles guide the development of state-approved CTE programs:

1) **CTE programs are developed in conjunction with all relevant stakeholder groups.**

   Each local school system works closely with a CTE local advisory council (LAC) to continuously improve the local system of career and technology education. Program advisory committees (PACs) exist for each program or cluster of closely related programs within the LSS. The PAC members work directly with CTE Local Directors and teachers at each school to provide advice on program enhancements. These committees involve parents, students, teachers, postsecondary partners, representatives of business and industry, and labor organizations; partners in local workforce and economic development; and representatives of special populations. Responsibilities include the development, implementation, and evaluation of high-quality CTE programs.

2) **CTE programs are organized under broad clusters, based on all aspects of an industry, designed to help students make informed decisions regarding career pathways.**

   Broad career clusters share a common core of knowledge and skills that provide students with an understanding of all aspects of the industry that they are planning to enter. For each cluster, these include planning, management, finances, technical and production skills, underlying principles of technology, labor issues, and health and safety. Learning and instruction are supported by appropriate career development activities aligned with the Maryland Career Development Framework to help inform students' decisions and prepare them for lifelong learning.

3) **Economic market demands, both current and projected, constitute the criteria for identifying value-added opportunities.**

   Issues of economic development and workforce preparation are considered in order to determine the need for CTE programs. CTE program developers document labor

market demand for the clusters in order to determine which CTE programs to offer to students. Labor market information is gathered at local, regional, state, and national levels. New or emerging programs offered at the postsecondary level should also be considered in order to provide secondary school students with the opportunity to link high school learning opportunities with college. CTE programs provide value-added opportunities for students, including entry into careers and further education. Therefore, it is important to consider postsecondary program options that align with secondary programs.

4) CTE programs are developed in response to an identified opportunity to add value to students' overall educational programs by preparing them for both college and careers.

CTE program developers seek out and provide accurate information about opportunities that add value to a student's educational program. Students enrolled in CTE complete a planned, sequential program of study that blends academic, technical, and workplace skills. CTE program completers have the advantage of graduating from high school with career options that are often only available to students who have completed a CTE program. Dual completers, those who complete both a CTE approved program of study and meet the University System of Maryland's (USM's) admissions requirements, graduate prepared for both college and careers.

5) CTE programs are based on the most appropriate, reliable and valid technical and academic standards available.

CTE programs include a coherent set of academic, employability and technical skills, based on national and state standards that provide students moving directly to employment with a value-added competitive advantage. The program advisory committee (PAC) validates the most current technical standards and adopts or adapts those appropriate for the needs of the program. Where no appropriate standards exist, the program advisory committee, in conjunction with the local school system, outlines standards to define the academic, career, and technical skills required for completion of the program. The academic standards are based on Maryland's state curriculum.

6) CTE programs provide multiple options for students as they prepare for entry into careers and further education.

CTE programs are developed in conjunction with representatives from business, industry, labor organizations and apprenticeship programs, and secondary and postsecondary education. This ensures curricular alignment, often accomplished through articulation agreements, so that there is a seamless transition for students moving directly to employment or postsecondary education. CTE programs are designed to provide students with a planned sequential program of studies combining academic and technical courses beginning in high school and continuing for two or more years of postsecondary education.

The nature of the contemporary workplace requires that supervised work-based learning opportunities are made available to students to help them make informed

career decisions. These placements are designed to provide meaningful work experience as an integral part of the CTE program to extend, reinforce, and validate students' learning. They are organized in partnership among the local school system, business and industry, labor organizations, community agencies, and the family.

Several CTE programs offer students opportunities to complete industry-mentored or capstone projects. They are typically completed as a culminating effort by students to demonstrate the cumulative learning that has occurred during the entire CTE program of study. Students work directly with industry mentors, as individuals or in teams, to receive advice and guidance in the development of their projects. Students in CTE may complete an industry-mentored project in addition to or instead of participating in a work-based learning experience.

7) CTE programs are measured against student attainment of rigorous academic, employability and technical skills and student success in further education and employment.

CTE students meet state-established academic standards based on Maryland's high school state curriculum. CTE students also have the prerequisite skills for entry into postsecondary education as evidenced by reducing the number of students needing remediation; increasing the number of CTE students meeting Maryland's rigorous course indicators; and increasing the percentage meeting University System of Maryland (USM) admissions requirements.

CTE students attain the state-established *Skills for Success* as represented by students successfully transitioning into employment, further education, or both. To fulfill this principle, programs include technical skill development and leadership experiences for students through Career and Technology Student Organizations (CTSOs) or other appropriate professional associations.

CTE students complete a rigorous end-of-program assessment combining academic and technical skills. Where recognized national, state, or local certification or licensure programs exist, they are used. Where certification examinations do not exist, local school systems work with their local advisory councils and program advisory committees to identify appropriate assessments. End-of-program assessments inform teachers of students' achievement and provide evidence for changes needed in the instructional program.

To ensure that all students have the opportunity to attain the necessary knowledge and skills, support services for members of special populations are identified and provided in all CTE programs, including related instruction.

8) Outcome data for CTE programs are reported and used.

Local school systems and local advisory councils collect and analyze data on student attainment of rigorous academic, employability, and technical skills. Outcome data are used to drive a process of continuous improvement for all CTE programs, including decision-making regarding the viability of such programs. State and local outcome data for CTE programs serve as a means of benchmarking program performance and closing performance gaps.

Process for Developing New CTE Program Proposals

The process for developing new CTE programs is designed to be collaborative in nature and results in the submission of approved program proposals. Staff members representing the Division of Career and College Readiness (DCCR) will provide technical assistance to build local capacity to develop and continuously improve CTE programs. To begin the process, contact the DCCR Regional Coordinator listed in Appendix A. The process steps follow:

Steps in the Program Development Process

Steps 1A and 1B
Establish the program advisory committee and conduct labor market needs analysis

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Step 2A
Review cluster, pathways, technical skill standards, and academic state curriculum to identify the CTE program(s) to be developed. Describe the program based on desired student outcomes

↓

Step 2B
Describe each CTE completer course and identify end-of-course assessments

↓

Step 2C
Determine appropriate curriculum, end-of-program assessments, licenses, and certifications

↓

Step 2D
Complete the secondary program matrix and indicate the concentrator course with an asterisk

↓

Step 2E
Specify the types of value-added options available to students (credentials and/or postsecondary credit)
Complete the postsecondary program matrix and attach a copy of the articulation agreement

↓

Step 2F
Identify the work-based learning experiences or industry-mentored projects provided to students

↓

Step 2G
Identify the CTSO opportunity provided to students in the program

↓

Repeat Step 2A
Review overall Program Description to ensure accuracy with the course offerings, value-added options, work-based learning experiences, and CTSO identified for the program

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Step 3
Identify sites and allocate resources

↓

Step 4
Submit and Present Proposal to MSDE/DCCR

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Step 5
Implement and continuously improve programs

Requirements for each phase of the process follow.

New Local School System
CTE Program Development Process

Begin with a System-Wide Perspective

Career and technology programs are developed under clusters and pathways, as part of the local school system's entire program offerings. The DCCR Regional Coordinators interact with the CTE Local Directors and serve as liaisons to the MSDE career cluster teams. Using a system-wide perspective, regional coordinators advise CTE Local Directors as they establish local plans to develop new programs and revise existing ones. The Local CTE Plan for Program Improvement becomes part of a local school system's Master Plan under the Bridge to Excellence in Education Act. Local directors typically adopt Maryland's CTE Programs of Study that are developed in consultation with representatives from business, industry, apprenticeship programs, and secondary and postsecondary educators. However, when a local program advisory council recommends implementing a new program that has not been developed by DCCR, members of the CTE staff provide technical assistance to help CTE Local Directors complete the three-phase process for locally developed programs:

Phase 1

Consult with the LAC to align the CTE system with the state cluster frameworks using local clusters. Select CTE programs in related clusters for development or improvement. Develop short-term objectives and long term strategic plans. Convene PACs to develop new CTE programs under the cluster frameworks – or use the frameworks to combine or improve existing programs. Use a system-wide perspective to migrate aging programs to Maryland CTE Programs of Study, to eliminate or upgrade low-performing programs, and/or to add new programs. Submit program proposals to MSDE for review by the appropriate cluster team and CTE Program Review Panel.

Phase 2

Continue ongoing program development and improvement by implementing or phasing in CTE programs of study. Provide professional development to teachers. Expand value-added industry-recognized options offered to students, such as transcripted and articulated credit, credentials and apprenticeship opportunities.

Phase 3

Fully implement the cluster frameworks and supporting structures such as blended instruction, career development, industry-mentored projects, and work-based learning experiences. Provide leadership to on-going professional development, program improvement, and monitoring.

Developing CTE Programs

Career and technology education programs are developed within the context of broad career clusters. The process for developing high quality career and technology education programs within the cluster begins by contacting the DCCR Regional Coordinator and includes the following steps:

Step 1A and 1B
Establish the program advisory committee and conduct the labor market needs analysis.

The first step in the process is to establish an industry-led PAC with input from postsecondary educators; and business, industry, and/or labor organizations representing the program as well as the broader cluster. The PAC lists are submitted with each program proposal. The role of the PAC is to conduct a needs analysis to review the cluster, pathways, and CTE programs under consideration. The PAC reviews labor market information at local and state levels to determine whether there is a demand (or lack of demand) for employees in the industry. Opportunities to include articulation agreements are considered in the earliest stages of the CTE program development process.

Step 2A
Review cluster, pathways, technical skill standards, and academic state curriculum to identify the CTE program(s) to be developed. Describe the program(s) based on desired student outcomes.

In 2003, the MSDE published 10 career cluster frameworks in the document titled *Maryland Career Clusters: Restructuring Learning for Student Achievement in a Technologically Advanced, Global Society*. Maryland's career cluster frameworks identify the major career pathways and sample career options in the state's industries. Each career cluster framework also identifies the skills that are transferable across career clusters.

Using all available research, the PAC reviews the appropriate cluster framework and identifies potential broad career pathways for local CTE program offerings. The PAC determines which CTE programs to select for further development in relation to programs that already exist in the cluster. This process also includes an analysis of the relevance and performance of existing programs, the identification of new programs in relation to the core functions of the industry, as well as current and future workforce development needs. If a Maryland CTE Program of Study is not available, a new locally developed CTE program may be proposed. The CTE Local Directors are encouraged to contact the DCCR Regional Coordinator for technical assistance or to schedule a meeting with the appropriate MSDE cluster team (see Appendix A) as the program is planned.

Next, the PAC reviews the technical skill standards most closely aligned with the program to ensure that they are relevant and current. The standards serve as the foundation for the development of curriculum, instruction and assessment strategies. The PAC identifies the technical and workplace skills (*Skills for Success)* as well as the academic standards that students need to master to succeed in the program. The standards include the:

1) core knowledge and skills that all students in the cluster will master;
2) academic, technical and workplace skills embedded in the program;
3) knowledge and skills learned best through participation in industry-mentored projects and/or supervised work-based learning experiences; and

4) knowledge and skills that require more extensive experience or industry training and certification.

After a thorough review process, the PAC recommends the program to be developed and provides advice regarding credit and degree programs, articulation and dual enrollment agreements, and industry-recognized credentials such as licenses and certifications. Administrators and teachers develop the program overview that broadly describes what students are expected to know and be able to demonstrate after completing the program. The overview clearly describes prerequisite requirements as well as knowledge and skills students will acquire in the program. Written in clear and concise language, the overview is useful in marketing the program to target audiences, such as students, parents, and guidance counselors.

Step 2B
Describe each CTE completer course and identify end-of-course assessments.

Administrators and teachers develop the course descriptions and consult with the PAC to identify end-of-course assessments. Course descriptions are written based on well-defined goals and objectives. These clearly specify what students will know and be able to demonstrate as a result of participating in the course. End-of-course assessments are culminating experiences used to document student attainment of the knowledge and skills included in each course. Program assessments are aligned with the standards and performance indicators used to develop the program. As such, assessments include projects, written and performance examinations, and tests leading to credentialing and licensing.

Assessment results must be both reliable and valid. An assessment is reliable if it yields results that are accurate and stable. A reliable assessment is one which consistently achieves the same results with the same (or similar) cohort of students. A valid assessment is one which measures what it is intended to measure.

There are three criteria for developing programs as follows:

1. **Cluster Foundation Knowledge and Skills.** The foundation skills provide students with a working knowledge of all aspects of the industry addressed by the cluster, or several pathways within the cluster. Cluster foundation skills include the most critical business functions or activities and an awareness of the full range of careers. The foundation knowledge and skills provide students with an overview of the higher-level responsibilities in designing, managing, performing and improving these critical business functions or activities. Maryland's state curriculum, employability skills or *Skills for Success* and career development are linked to achieve integration. These knowledge and skills are not only designed to inform the development of career exploration activities; rather, the primary intention is to integrate them into rigorous courses that provide students with the foundation knowledge and skills important to the industry. Maryland's Career Development Framework and standards are implemented locally to assist students in designing their academic and career plans.

2. **Specialization within Pathways.** A program usually includes technical content from the pathways defined in Maryland's career cluster frameworks. Content is defined by pathway technical content standards and Maryland's state curriculum. The pathway technical content standards should provide students with more in-depth technical and academic knowledge and skills needed to perform higher-level responsibilities for the critical business activities addressed in the cluster foundation course.

3. **Certification and College Credit.** The program sequence results in a recognized industry certification (including state licenses/certifications) and/or earned college credits toward a postsecondary degree, certificate, or apprenticeship program. Content is defined by the technical content standards required for licensure or industry-recognized certification and/or postsecondary credit. Content is also linked to Maryland's state curriculum. College credit can be earned through dual enrollment, credit by examination, articulation, and transcripted credit.

Step 2C
Determine appropriate curriculum, end-of-program assessments, licenses, and certifications.

Secondary and postsecondary academic and CTE teachers develop the curriculum and course sequences to provide students with knowledge of all aspects of the industry and engage them in major activities defined for the pathways. Curriculum can be adopted, adapted, or developed, depending on the decisions of the PAC and teachers. Curriculum is based on the most relevant academic, technical, and employability standards available. Academic courses are identified to complement and support CTE programs. Opportunities for CTE program articulation are identified as the program is developed.

Teachers consult with the PAC to determine the end-of-program assessments and licensing or certification examinations that will be used to document student performance. Include and identify assessments leading to industry recognized credentials if available and appropriate. By offering end-of-program assessments and licensing or certification examinations, student performance is documented and teachers have information to improve learning and instruction. These assessments are aligned with the academic, technical, and industry skills that are integrated into the curriculum and must be valid and reliable. As such, they include both written and performance-based assessments and extend beyond traditional competency profiles. Opportunities exist for students to earn credentials that are valued by employers, labor unions, and college admissions officers.

Step 2D
Complete the secondary program matrix.

The program matrix defines a planned, sequential program of study that aligns academic subjects with at least four credits in CTE including a capstone or culminating experience such as an industry-mentored project and/or work-based learning. Work-based learning experiences or capstone projects should be required of all students, with

rare exceptions. The program matrix includes the specific academic and CTE courses required for success in the CTE program as well as in postsecondary education (i.e., early college credit through articulation agreements - dual enrollment, advanced placement, transcripted and articulated credit).

The sequence of courses is reflected in a matrix that identifies:

1. State and local academic courses required for graduation that align with and complement the CTE program,
2. CTE courses that blend instruction and ensure student mastery of the industry standards for the pathway;
3. The concentrator course (which typically occurs after students complete 50 percent of the program; and
4. The postsecondary program sequence(s) available to students pursuing further education, including apprenticeships and articulated and dual enrollment courses.

CTE programs typically begin after ninth grade and do not include career exploration courses. Courses such as computer applications and keyboarding are not included in the completer sequence because they provide prerequisite skills for both academic courses and CTE programs. Academic courses are counted only if they are tailored to serve mainly CTE students and have been revised to reflect industry skill standards. Technology Education or Advanced Technology Education and Personal Financial Literacy courses are not acceptable for credit in the career and technology education program sequence.

In consultation with the PAC, educators develop a list of potential career options students are preparing to enter after completing the secondary and postsecondary program sequences and describe the options for further education

Step 2E
Specify the type(s) of value-added options available to students enrolled in the program.

Approved CTE programs often include opportunities for students to earn postsecondary credit while still in high school. Options to earn early college credit, including advanced placement, dual enrollment, transcripted and articulated credit, and apprenticeships are available to students. Program articulation is preferable to course-by-course articulation so that students can earn advanced placement in a college major or an apprenticeship program approved by the Maryland Apprenticeship and Training Council (MATC). The program sequences include secondary and postsecondary courses required of students. Also, many approved CTE programs offer students opportunities to earn credentials, such as industry-recognized certifications and licenses, prior to graduating from high school. These value-added options enable students to get a head start in their careers and/or postsecondary education.

In developing CTE program sequences, secondary and postsecondary educators collaborate to complete the two- and/or four-year program matrix. The CTE Local Director submits a copy of the articulation agreement with the program proposal or amendment to MSDE.

Step 2F
Identify the work-based learning experiences and industry-mentored projects provided to students.

Supervised work-based learning experiences or industry-mentored projects are a required component of an approved CTE program. They are provided to enrich and advance school-based instruction and are required for all students who demonstrate readiness to participate. The definitions for work-based learning experiences and industry-mentored projects are defined in the glossary.

Step 2G
Identify the CTSO opportunity provided to students in the program.

Through intra-curricular CTSOs, students have opportunities to participate in career development experiences, demonstrate and further refine their technical skills, and exhibit leadership abilities. The PAC is a valuable resource for obtaining the support necessary to implement successful student organizations. Students enrolled in CTE programs are encouraged to participate in CTSOs or other professional associations or organizations as identified by the program of study.

Repeat Step 2A: Before proceeding, review the overall program description in Step 2A to ensure accuracy with the course offerings, value-added options, work-based learning opportunities and industry-mentored projects, and the CTSO identified for the program.

Step 3
Identify sites and allocate resources.

After considering resources, the CTE Local Director determines where to offer the program and specifies the number of credits required for program completion by filling out the Instructional Program Data Sheet. The PAC assists teachers in examining what resources currently exist to support the cluster and programs, and identifying any additional resources needed for successful implementation. These include staffing, instructional materials, equipment, training and professional development, and work-based learning experiences and industry-mentored projects for teachers and students. Each year, these needs are discussed and considered when developing budgets and allocating fiscal and human resources. These considerations are reflected in the Local CTE Plan for Program Improvement.

Step 4
Submit and Present Proposal to MSDE/DCCR.

The CTE Local Director reviews the contents of the CTE program proposal to ensure accuracy and completeness, obtains the signature of the superintendent, signs the cover page, and submits the proposal to MSDE via Docushare for review and approval.

Proposals are accepted by DCCR three times a year. Dates are provided by MSDE on an annual basis. Program proposals are reviewed by the appropriate MSDE Regional Coordinator and cluster team and a feedback form is provided to the CTE Local Director (Appendix C). If needed, clarifying questions and/or requests for revisions are emailed

to the CTE Local Director. Once all requests from MSDE are responded to, the program proposal is sent to the CTE Program Review Panel with MSDE's recommendations. If the MSDE cluster team recommends the program proposal for approval, the CTE Local Director does not need to present the proposal to the Panel.

If the program proposal is not recommended for approval by the MSDE cluster team, the CTE Local Director may elect to present the program proposal to the CTE Program Review Panel or withdraw it until it is in approvable form. If presenting the proposal, the local CTE team, led by the CTE Local Director, will have up to 30 minutes to discuss their proposal (in person or via conference call). If two or more CTE Local Directors work together to develop a program, they can present as a team. The CTE Local Director assembles the local team that presents to the panel. In addition to answering the questions posed by the panel, the presentation will provide a brief overview of the program, a description of the intended outcomes, and identification of the articulation and/or certification options available to students. The Panel will recommend actions (approval, modifications or disapproval) to the Assistant State Superintendent of the Division of Career and College Readiness.

The CTE Program Review Panel will consist of no more than seven members and include CTE Local Directors, representatives from other state agencies, and business and community partners (ex-officio members include the DCCR Regional Coordinator and cluster team representatives).

The Assistant State Superintendent of the Division of Career and College Readiness will review the Panel's recommendations and make the final decision on the approval status of the proposal. The CTE Local Director must submit required modifications within 45 days of the date of the presentation, or approval will not occur until the next scheduled meeting of the Panel. Once the program is approved, a letter will be sent to the local superintendent from the Assistant State Superintendent of the Division of Career and College Readiness and the program is added to "List A" – the DCCR list of approved CTE programs.

Step 5
Implement and Continuously Improve Programs.

Each LSS develops and submits a Local CTE Plan for Program Improvement to MSDE, which is updated annually. The plan reflects identified improvements, updates and/or adoption of new CTE programs. The CTE Local Director, in concert with the local advisory council, develops the Local CTE Plan for Program Improvement to ensure it reflects new and improved CTE programs.

As part of the continuous improvement process, the local PAC annually reviews programs within the context of the career clusters to ensure that they keep pace with changes in industry. After reviewing all available program data, the PAC and educators discuss upgrades that need to be made to current CTE programs. During this dialogue the PAC informs educators about changes within the industry and recommends modifications that need to be made in curriculum and instruction. Program improvements are described and addressed in the local plan.

If major modifications to the CTE program of study are required, then an amendment must be submitted to MSDE. The process for amending CTE programs is described on pages 30 through 35.

Directions for Completing the New Program Proposal for Submission to MSDE/DCCR

The following requirements comprise the components that are submitted to the MSDE/DCCR when developing a CTE program proposal. Staff members representing the Division of Career and College Readiness will provide leadership and technical assistance to build the capacity of local school systems' representatives in developing and amending program proposals.

The CTE Local Director contacts the DCCR Regional Coordinator to begin the program development process. The DCCR Regional Coordinator serves as the primary resource person to the local program development team with assistance from MSDE Cluster Team Members (see Appendices A and B).

The CTE Local Director (or designee) assumes the lead responsibility for planning the program. The DCCR Regional Coordinator assists by identifying resources, building local school system capacity to develop programs, and providing technical assistance in program development and implementation.

The Regional Coordinator reviews the program proposal submission calendar with the CTE Local Director to determine when the program proposal will be submitted to MSDE for review by the cluster team and the CTE Program Review Panel.

Electronic copies of all Maryland CTE Programs of Study are available to download from www.marylandpublicschools.org. The contents of the proposals are consistent with the required components of a new CTE program. When local school systems adopt a Maryland CTE Program of Study, all of the program requirements must be adhered to without modification. DCCR will provide templates to CTE Local Directors for completion as Maryland CTE Programs of Study are developed.

Proposals for new CTE programs are submitted with completed MSDE forms signed by the appropriate personnel. The forms are found on pages 18 through 31. Once completed and signed, in **BLUE** ink, upload all documents to DocuShare in the appropriately named folder, i.e., Maryland Programs of Study, Perkins Grant, Reserve Fund etc. Then send an email to Jeanne-Marie S. Holly at jmholly@msde.state.md.us and copy your Regional Coordinator, indicating which document has been uploaded and is ready for routing and review.

Uploaded documents showing the signatures in BLUE ink are considered originals and no copies need to be mailed. Otherwise, the documents requiring signature must be signed in BLUE ink and submitted through the mail to Jeanne-Marie Holly at:

Jeanne-Marie S. Holly, Program Manager - CTE Systems Branch
Maryland State Department of Education
Division of Career and College Readiness
200 West Baltimore Street
Baltimore, Maryland 21201-2595

New Local Secondary CTE Program of Study Form

Maryland State Department of Education
Division of Career and College Readiness
200 West Baltimore Street
Baltimore, Maryland 21201-2595

This agreement is between the Division of Career and College Readiness (DCCR), Maryland State Department of Education (MSDE), and the local school system listed below.

LOCAL SCHOOL SYSTEM INFORMATION – Complete the information requested below, including the original signature of the CTE Local Director.

Local School System (LSS) and Code: _____

Name of CTE Local Director: _____ Phone: _____

LSS Career Cluster: _____

LSS Program Title: _____

Pathway Options: 1. 2. 3.

Value Added Options: ☐ yes ☐ no This program provides students the opportunity to earn early college credit. The academic and technical course sequences for both secondary and postsecondary programs are included herein.

☐ yes ☐ no Enclosed is a copy of the articulation agreement (Copy required for CTE program approval if the program is articulated with a postsecondary education provider).

☐ yes ☐ no This program provides students with the opportunity to earn an industry-recognized credential. The credential is identified herein.

Program Start Date: _____

Signature of CTE Local Director: _____ Date: _____

Signature of Local Superintendent: _____ Date: _____

TO BE COMPLETED BY MSDE/DCCR

Date Program Proposal received by CTE Systems Branch: _____

CTE Control Number: _____ Fiscal Year: _____

CIP Number:	Program:	Pathway Option 1:	Pathway Option 2:	Pathway Option 3:

MSDE ClusterTitle: _____

Approval Starts FY: _____

_____ _____
Signature, Assistant State Superintendent, Career and College Readiness Date

CTE Secondary Program Proposal Contents

STEP 1A: PROGRAM ADVISORY COMMITTEE MEMBERS AND THEIR AFFILIATIONS
Complete the list of the Program Advisory Committee (PAC) members. Members should include employers, local workforce development representatives, economic development personnel, business, or labor representatives, and the remainder should include secondary and postsecondary, academic and technical educators and other stakeholders. Place a check in the appropriate box to indicate the role each person plays. Include all of the information requested for each entry. Use this form or a locally developed form – either one is acceptable as long as all information is provided.

Program Advisory Committee List

Membership: First entry should be the industry representative who is leading the PAC.					
PAC Leader Name:			Representation:		
Title:			☐ Industry ☐ Secondary ☐ Postsecondary		
Affiliation:					
Address1:					
Address2:					
City, State, Zip:		State:		Zip	
Phone:		Fax:			
Email:					
Area of Expertise:					
Role:	☐ Work-based Learning ☐ Curriculum Development ☐ Skills Standards Validation ☐ Staff Development ☐ Program Development ☐ Other (specify):				

Name:			Representation:		
Title:			☐ Industry ☐ Secondary ☐ Postsecondary		
Affiliation:					
Address1:					
Address2:					
City, State, Zip:		State:		Zip	
Phone:		Fax:			
Email:					
Area of Expertise:					
Role:	☐ Work-based Learning ☐ Curriculum Development ☐ Skills Standards Validation ☐ Staff Development ☐ Program Development ☐ Other (specify):				

Name:			Representation:		
Title:			☐ Industry ☐ Secondary ☐ Postsecondary		
Affiliation:					
Address1:					
Address2:					
City, State, Zip:		State:		Zip	
Phone:		Fax:			
Email:					
Area of Expertise:					
Role:	☐ Work-based Learning ☐ Curriculum Development ☐ Skills Standards Validation ☐ Staff Development ☐ Program Development ☐ Other (specify):				

Name:		Representation:			
Title:		☐ Industry ☐ Secondary ☐ Postsecondary			
Affiliation:					
Address1:					
Address2:					
City, State, Zip:		State:		Zip	
Phone:		Fax:			
Email:					
Area of Expertise:					
Role:	☐ Work-based Learning ☐ Curriculum Development ☐ Skills Standards Validation ☐ Staff Development ☐ Program Development ☐ Other (specify):				

Name:		Representation:			
Title:		☐ Industry ☐ Secondary ☐ Postsecondary			
Affiliation:					
Address1:					
Address2:					
City, State, Zip:		State:		Zip	
Phone:		Fax:			
Email:					
Area of Expertise:					
Role:	☐ Work-based Learning ☐ Curriculum Development ☐ Skills Standards Validation ☐ Staff Development ☐ Program Development ☐ Other (specify):				

Name:		Representation:			
Title:		☐ Industry ☐ Secondary ☐ Postsecondary			
Affiliation:					
Address1:					
Address2:					
City, State, Zip:		State:		Zip	
Phone:		Fax:			
Email:					
Area of Expertise:					
Role:	☐ Work-based Learning ☐ Curriculum Development ☐ Skills Standards Validation ☐ Staff Development ☐ Program Development ☐ Other (specify):				

Name:		Representation:			
Title:		☐ Industry ☐ Secondary ☐ Postsecondary			
Affiliation:					
Address1:					
Address2:					
City, State, Zip:		State:		Zip	
Phone:		Fax:			
Email:					
Area of Expertise:					
Role:	☐ Work-based Learning ☐ Curriculum Development ☐ Skills Standards Validation ☐ Staff Development ☐ Program Development ☐ Other (specify):				

STEP 1B: DOCUMENTED LABOR MARKET DEMAND – Check the appropriate box below.

☐ Demand exists

The PAC will review labor market information on a local, regional and/or state basis. Check this box if demand exists for the identified occupations. The labor market information does not need to be provided with the proposal as long as there is a demand for employees according to data provided by the Department of Labor, Licensing and Regulation (DLLR) or documented by employers in letters or other correspondence.

☐ If evidence for labor market demand is not readily available, attach documentation to the proposal.

Check this box if there is a unique labor market demand for a program and data are not available from the DLLR. If the occupation is new or emerging and no data exist, supporting evidence is submitted with the proposal (i.e., document local, national, or regional trends, local circumstances, or provide letters from employers or local economic/workforce development offices documenting employment demand including the projected number of openings by pathway).

STEP 2A: PROGRAM OVERVIEW – After determining the cluster and pathway options, identify the standards used to develop the CTE program of study. Describe the program to be developed in detail based on what students are expected to know and be able to demonstrate as a result of participating in the program.

Indicate the title and source of the skills standards for this program:

Program Overview:

STEP 2B: COURSE DESCRIPTIONS AND END OF COURSE ASSESSMENTS – Insert each CTE completer course title. Describe each course based on what students are expected to know and be able to demonstrate as a result of their participation. Check the assessment instrument(s) that will be used to document student attainment of the knowledge and skills included in each course and specify additional information as appropriate.

Course Title: _____
Course Description:

End of Course Assessment

Check the assessment instruments that will be used to document student attainment of the course knowledge and skills.

- ☐ Teacher-designed end-of-course assessment
- ☐ School system-designed end-of-course assessment
- ☐ Partner-developed exam: (specify) _____
- ☐ Licensing exam: (specify) _____
- ☐ Certification or credentialing exam: (specify) _____
- ☐ Nationally recognized examination: (specify) _____

Course Title: _____
Course Description:

End of Course Assessment

Check the assessment instruments that will be used to document student attainment of the course knowledge and skills.

- ☐ Teacher-designed end-of-course assessment
- ☐ School system-designed end-of-course assessment
- ☐ Partner-developed exam: (specify) _____
- ☐ Licensing exam: (specify) _____
- ☐ Certification or credentialing exam: (specify) _____
- ☐ Nationally recognized examination: (specify) _____

Course Title: _____
Course Description:

End of Course Assessment

Check the assessment instruments that will be used to document student attainment of the course knowledge and skills.

- ☐ Teacher-designed end-of-course assessment
- ☐ School system-designed end-of-course assessment
- ☐ Partner-developed exam: (specify) _____
- ☐ Licensing exam: (specify) _____
- ☐ Certification or credentialing exam: (specify) _____
- ☐ Nationally recognized examination: (specify) _____

Course Title: _____
Course Description:

End of Course Assessment

Check the assessment instruments that will be used to document student attainment of the course knowledge and skills.

- ☐ Teacher-designed end-of-course assessment
- ☐ School system-designed end-of-course assessment
- ☐ Partner-developed exam: (specify) _____
- ☐ Licensing exam: (specify) _____
- ☐ Certification or credentialing exam: (specify) _____
- ☐ Nationally recognized examination: (specify) _____

Course Title: _____
Course Description:

End of Course Assessment

Check the assessment instruments that will be used to document student attainment of the course knowledge and skills.

- ☐ Teacher-designed end-of-course assessment
- ☐ School system-designed end-of-course assessment
- ☐ Partner-developed exam: (specify) _____
- ☐ Licensing exam: (specify) _____
- ☐ Certification or credentialing exam: (specify) _____
- ☐ Nationally recognized examination: (specify) _____

Course Title: _____
Course Description:

End of Course Assessment

Check the assessment instruments that will be used to document student attainment of the course knowledge and skills.

- ☐ Teacher-designed end-of-course assessment
- ☐ School system-designed end-of-course assessment
- ☐ Partner-developed exam: (specify) _____
- ☐ Licensing exam: (specify) _____
- ☐ Certification or credentialing exam: (specify) _____
- ☐ Nationally recognized examination: (specify) _____

STEP 2C: END-OF-PROGRAM ASSESSMENT - Check the assessment instruments that will be used to document student attainment of the program knowledge and skills. Include and identify assessments leading to industry recognized credentials if available and appropriate.

- ☐ Teacher-designed end-of-program assessment
- ☐ School system-designed end-of-program assessment
- ☐ Partner-developed exam: (specify) _____
- ☐ Licensing exam: (specify) _____
- ☐ Certification or credentialing exam: (specify) _____
- ☐ Nationally recognized examination: (specify) _____

STEP 2D: Program Sequence Matrix (Include the program sequences for High School, Associate's Degree, and Bachelor's Degree programs) Identify the pathway options. Complete the matrix for the 9-12 CTE program of study, and the articulated program sequence in the matrix for the two- or four-year college program of study. Indicate which courses receive CTE credit by placing the number of credits in parentheses after each CTE course title. Place an asterisk (*) next to the course identified as the concentrator course indicating that the student has completed 50% of the program.

The CTE program matrix defines a planned, sequential program of study that consists of a minimum of four credits in CTE coursework in high school including work-based learning and/or industry-mentored projects. Work-based learning (WBL) experiences or industry-mentored projects must be included in the program to obtain approval. The program matrix includes the recommended academic and CTE courses identified for the pathway and postsecondary linkages (i.e., dual enrollment, transcripted and articulated credit).

CTE programs typically begin after ninth grade and do not include career exploration courses. Courses such as computer applications and keyboarding are not included in the completer sequence because they provide prerequisite skills for both academic courses and CTE programs. Academic courses are counted only if they are tailored to serve mainly CTE students and have been revised to reflect industry skill standards. Technology Education or Advanced Technology Education and Personal Financial Literacy courses are not acceptable for credit in the career and technology education program sequence.

The LSS program title should be the same one that appears on the cover page. If more than one pathway option is offered in the program, complete a matrix for each program option (MSDE will insert the CIP number). Example: An Academy of Information Technology program may include options in web design & programming.

Pathway/Program:	_____		**CIP Number (For MSDE Use)**	_____
Graduation Requirements	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
English - 4				
Social Studies - 3				
Mathematics - 3				
Science - 3				
Physical Education -.5 Health Education - .5				
Fine Arts - 1				
Technology Education - 1				
CTE Completer Program – 4 *concentrator course				
Foreign Language - 2 and/or Advanced Tech Ed - 2				

Provide a list of examples of careers students are preparing to enter and postsecondary options:

Two Year College Program Sequence – Program Overview

Many local school systems provide postsecondary matrices in their program of study guides to inform students, parents, and counselors of the opportunities available to those enrolled in the program. Section 2E must be completed before an articulated CTE program of study can be approved. *A copy of the Articulation Agreement is also required to be submitted with the proposal prior to program approval.*

Describe the program to be developed in detail based on what students are expected to know and be able to demonstrate as a result of participating in the program.

Program Title: _____

College/Institution: _____

Recommended Sequence – Complete the program matrix for the postsecondary sequence for the articulated CTE program of study. Indicate which courses receive articulated or transcripted credit by PLACING THE NUMBER OF CREDITS IN PARENTHESES after each course title.

Semester 1	Semester 2
Semester 3	**Semester 4**

Provide a list of career options for students who complete the program:

Four Year College Program Sequence – Program Overview
Complete this matrix if the program includes a four year degree option

Many local school systems provide postsecondary matrices in their program of study guides to inform students, parents, and counselors of the opportunities available to those enrolled in the program. Section 2E must be completed before an articulated CTE program of study can be approved. *A copy of the Articulation Agreement is also required to be submitted with the proposal prior to program approval.*

Describe the program to be developed in detail based on what students are expected to know and be able to demonstrate as a result of participating in the program.

Program Title: _____

College/Institution: _____

Recommended Sequence – Complete the program matrix for the postsecondary sequence for the articulated CTE program of study. Indicate which courses receive articulated or transcripted credit by PLACING THE NUMBER OF CREDITS IN PARENTHESES after each course title.

Semester 1	Semester 2
Semester 3	**Semester 4**

Provide a list of career options for students who complete the program:

STEP 2E: VALUE-ADDED OPTIONS – Fill in the name of the partnering college or agency. Specify the credential that students will earn. Under value-added, indicate the number of credits or hours granted. This information is required before a program can be designated as a CTE articulated program of study.

Option	Partner	Credential	Value added for CTE completers
Dual Enrollment			
Transcripted Credit			
Articulated Credit			
Credit by Exam			
Advanced Placement			
Apprenticeship Approved by MATC*			
Certification(s)			
License			
Degree			
Other (specify)			

*MD Apprenticeship and Training Council

STEP 2F: INDUSTRY-MENTORED PROJECT OR WORK-BASED LEARNING OPPORTUNITIES
Check each box that applies.

PAC members and other industry partners provide supervised WBL experiences and/or industry-mentored projects for all students who demonstrate performance of the competencies necessary to enter into this phase of the program. Supervised work-based learning experiences are required for all students demonstrating readiness to participate. For the few who do not participate, alternative capstone experiences should be provided (i.e., in school work experiences, a culminating project, or another experience comparable in rigor). Each type of work-based learning is defined in the glossary. Job shadowing is **not** acceptable for credit in a CTE program.

1. ☐ Integrated WBL
2. ☐ Capstone WBL
3. ☐ Registered Apprenticeship
4. ☐ Internship
5. ☐ Industry-Mentored Project
6. ☐ In-school clinic or school-based enterprise

STEP 2G: STUDENT ORGANIZATIONS PROVIDED TO STUDENTS IN THE PROGRAM – Check each box that applies or specify if "Other" is selected.

Students will develop and apply technical and academic skills, as well as Skills for Success, through participation in:

☐ DECA ☐ FFA ☐ SkillsUSA
☐ FBLA ☐ OTHER (specify) _____

STEP 3: COMPLETE THE INSTRUCTIONAL PROGRAM DATA SHEET

Local School System (LSS) and Code: _____

Name of CTE Local Director: _____ Phone: _____

LSS Program Title: _____ CIP Code: _____

Pathway Options

1.	
2.	
3.	
4.	

INSTRUCTIONAL PROGRAM CREDIT BY GRADE(S)

Credits per year per pathway option as reflected by Course Sequences	9	10	11	12	TOTAL
1.					
2.					
3.					
4.					

Total number of credits for program completion: _____

CAREER AND TECHNOLOGY EDUCATION PROGRAM SITES

Pathway Options	School Name(s) Sites	School Number

EXAMPLE

STEP 3: INSTRUCTIONAL PROGRAM DATA SHEET – Using the example provided as a model, complete the Program Data Sheet.

Local School System (LSS) and Code: ABC Public Schools

Name of CTE Local Director: Mr. John Q. Public Phone: 301-555-1212

LSS Program Title: **Business Management and Finance** CIP Code: **See Below**

Pathway Options

1.	**Business Management (52.0251)**
2.	**Accounting (52.0354)**
3.	**Administrative Services (52.0451)**
4.	

INSTRUCTIONAL PROGRAM CREDIT BY GRADE(S)

Credits per year per pathway option as reflected by Course Sequences	9	10	11	12	TOTAL
1. Business Management		**1**	**1**	**2**	**4**
2. Accounting			**2**	**2**	**4**
3. Marketing		**1**	**2**	**1**	**4**
4.					

Total number of credits for program completion: 4

CAREER AND TECHNOLOGY EDUCATION PROGRAM SITES

Pathway Options	School Name(s) Sites	School Number
1	Forest Hills High School	003050
1,2	Kennedy High School	003044
2	Park Avenue High School	003022
3	Island High School	003037

Process for Amending Approved CTE Programs of Study

This is the amendment process to be used when revising existing approved career and technology education program proposals.

Type of Amendment	Action Required
Delete a site	• Delete site through the List "A" verification process
Add a site	• A letter with information about the type of amendment • A review and analysis of the Program Quality Index (PQI) for the program, along with Labor Market Demand • Evidence of approval by the local Program Advisory Committee • The Amended CTE Secondary Program Proposal Form • The Amended Instructional Program Data Sheet with the new site(s) listed
Changes in the course sequence that results in the addition, upgrade or removal of any course included in the required credits identified for CTE program completion, as reflected in the Program Sequence Matrix	• A letter with information about the type of amendment • A review and analysis of the PQI for the program, along with Labor Market Demand • Evidence of approval by the local Program Advisory Committee • The Amended CTE Secondary Program Proposal Form • The Amended Program Sequence Matrix with the new course sequence listed, description of the course(s), and revised program description if needed.
Development of CTE program articulation agreements to award students early college credit	• A letter with information about the type of amendment • A review and analysis of the PQI for the program, along with Labor Market Demand • Evidence of approval by the local Program Advisory Committee • A copy of the articulation agreement • The Amended CTE Secondary Program Proposal Form • The Program Sequence Matrix, or the Amended Program Sequence Matrix, as applicable • The Amended Value-Added Options chart

Once completed and signed, in **BLUE** ink, upload all documents to DocuShare in the appropriately named folder, i.e., Maryland Programs of Study, Perkins Grant, Reserve Fund etc. Then send an email to Jeanne-Marie S. Holly at jmholly@msde.state.md.us and copy your Regional Coordinator, indicating which document has been uploaded and is ready for routing and review.

Uploaded documents showing the signatures in BLUE ink are considered originals and no copies need to be mailed. Otherwise, the documents requiring signature must be signed in BLUE ink and submitted through the mail to Jeanne-Marie Holly at:

Jeanne-Marie S. Holly, Program Manager - CTE Systems Branch
Maryland State Department of Education
Division of Career and College Readiness
200 West Baltimore Street
Baltimore, Maryland 21201-2595

Amended Approved CTE Programs of Study

Amended CTE Secondary Program Proposal Form

Maryland State Department of Education
Division of Career and College Readiness
200 West Baltimore Street
Baltimore, Maryland 21201-2595

This agreement is between the Division of Career and College Readiness (DCCR), Maryland State Department of Education (MSDE), and the local school system listed below.

LOCAL SCHOOL SYSTEM INFORMATION

Local School System (LSS) and Code: _____

Name of CTE Local Director: _____ Phone: _____

LSS Career Cluster: _____

LSS Program Title: _____

Value Added Options:
☐ yes ☐ no This program provides students the opportunity to earn early college credit. The academic and technical course sequences for both secondary and postsecondary programs are included herein.

☐ yes ☐ no Enclosed is a copy of the articulation agreement (Copy required for CTE program approval if the program is articulated with a postsecondary education provider).

☐ yes ☐ no This program provides students with the opportunity to earn an industry-recognized credential. The credential is identified herein.

Program Start Date: _____

Signature of CTE Local Director: _____ Date: _____

TO BE COMPLETED BY MSDE/DCCR

Date Program Proposal received by CTE Systems Branch: _____

CTE Control Number: _____ Fiscal Year: _____

CIP Number: _____

MSDE ClusterTitle: _____

Approval Starts FY: _____

_____ _____
Signature, Program Manager, Career and Technology Education Systems Branch Date

AMENDED INSTRUCTIONAL PROGRAM DATA SHEET

STEP 3: INSTRUCTIONAL PROGRAM DATA SHEET – Using the example provided as a model, complete the Program Data Sheet.

Local School System (LSS) and Code: _____

Name of CTE Local Director: _____ Phone: _____

LSS Program Title: _____ CIP Code: _____

Pathway Options

1.	
2.	
3.	
4.	

INSTRUCTIONAL PROGRAM CREDIT BY GRADE(S)

Credits per year per pathway option as reflected by Course Sequences	9	10	11	12	TOTAL
1.					
2.					
3.					
4.					

Total number of credits for program completion: _____

CAREER AND TECHNOLOGY EDUCATION PROGRAM SITES

Pathway Options	School Name(s) Sites	Place an "X" for new sites	School Number

AMENDED PROGRAM SEQUENCE MATRIX

STEP 2D: Program Sequence Matrix (Include the program sequences for High School, Associate's Degree, and Bachelor's Degree programs) Identify the pathway options. Complete the matrix for the 9-12 CTE program of study, and the articulated program sequence in the matrix for the two- or four-year college program of study. Indicate which courses receive CTE credit by placing the number of credits in parentheses after each CTE course title. Place an asterisk (*) next to the course identified as the concentrator course indicating that the student has completed 50% of the program.

The program matrix defines a planned, sequential program of study that consists of a minimum of four credits in CTE coursework including work-based learning and/or industry-mentored projects. Work-based learning experiences or industry-mentored projects must be included in the program to obtain approval. The program matrix includes the recommended academic and CTE courses identified for the pathway and postsecondary linkages (i.e., dual enrollment, transcripted and articulated credit).

CTE programs typically begin after ninth grade and do not include career exploration courses. Courses such as computer applications and keyboarding are not included in the completer sequence because they provide prerequisite skills for both academic courses and CTE programs. Academic courses are counted only if they are tailored to serve mainly CTE students and have been revised to reflect industry skill standards. Technology Education or Advanced Technology Education and Personal Financial Literacy courses are not acceptable for credit in the career and technology education program sequence.

The LSS program title should be the same one that appears on the cover page. If more than one pathway option is offered in the program, complete a matrix for each program option (MSDE will insert the CIP number). Example: An Academy of Information Technology program may include options in web design & programming.

Pathway/Program:	_____		**CIP Number (For MSDE Use)**	_____
Graduation Requirements	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
English - 4				
Social Studies - 3				
Mathematics - 3				
Science - 3				
Physical Education -.5 Health Education - .5				
Fine Arts - 1				
Technology Education - 1				
CTE Completer Program – 4 *concentrator course				
Foreign Language - 2 and/or Advanced Tech Ed - 2				

Provide a list of examples of careers students are preparing to enter and postsecondary options:

STEP 2E: VALUE-ADDED OPTIONS – Fill in the name of the partnering college or agency. Specify the credential that students will earn. Under value-added, indicate the number of credits or hours granted. This information is required before a program can be designated as a CTE articulated program of study.

Option	Partner	Credential	Value added for CTE completers
Dual Enrollment			
Transcripted Credit			
Articulated Credit			
Credit by Exam			
Advanced Placement			
Apprenticeship Approved by MATC*			
Certification(s)			
License			
Degree			
Other (specify)			

*MD Apprenticeship and Training Council

Two Year College Program Sequence – Program Overview

Many local school systems provide postsecondary matrices in their program of study guides to inform students, parents, and counselors of the opportunities available to those enrolled in the program. Section 2E must be completed before an articulated CTE program of study can be approved. *A copy of the Articulation Agreement is also required to be submitted with the proposal prior to program approval.*

Describe the program to be developed in detail based on what students are expected to know and be able to demonstrate as a result of participating in the program.

Program Title: _____

College/Institution: _____

Recommended Sequence – Complete the program matrix for the postsecondary sequence for the articulated CTE program of study. Indicate which courses receive articulated or transcripted credit by placing the number of credits in parentheses after each course title.

Semester 1	Semester 2
Semester 3	**Semester 4**

Provide a list of examples of careers students are preparing to enter:

Four Year College Program Sequence – Program Overview
Complete this matrix if the program includes a four-year degree option.

Many local school systems provide postsecondary matrices in their program of study guides to inform students, parents, and counselors of the opportunities available to those enrolled in the program. Section 2E must be completed before an articulated CTE program of study can be approved. *A copy of the Articulation Agreement is also required to be submitted with the proposal prior to program approval.*

Describe the program to be developed in detail based on what students are expected to know and be able to demonstrate as a result of participating in the program.

Program Title: _____

College/Institution: _____

Recommended Sequence – Complete the program matrix for the postsecondary sequence for the articulated CTE program of study. Indicate which courses receive articulated or transcripted credit by placing the number of credits in parentheses after each course title.

Semester 1	Semester 2
Semester 3	**Semester 4**

Provide a list of examples of careers students are preparing to enter:

Appendix A:
DCCR Regional Coordinators

The DCCR Regional Coordinators listed below are the first point of contact for the development of a new secondary CTE program proposal:

Rosemary Bitzel **(410) 767-0165** **rbitzel@msde.state.md.us**

Baltimore City	Baltimore City Community College
Carroll County	
Howard County	Howard Community College
Montgomery County	Montgomery College
Calvert County	College of Southern Maryland
Charles County	
St. Mary's County	
Frederick County	Frederick Community College
Prince George's County	Prince George's Community College

Nancy Hauswald **(410) 767- 0175** **nhauswald@msde.state.md.us**

Anne Arundel County	Anne Arundel Community College
Allegany County	Allegany College of Maryland
Baltimore County	The Community College of Baltimore County
Cecil County	Cecil College
Harford County	Harford Community College
Garrett County	Garrett College
Washington County	Hagerstown Community College
Caroline County	Chesapeake College
Dorchester County	
Kent County	
Queen Anne's County	
Somerset County	
Talbot County	
Wicomico County	Wor-Wic Community College
Worcester County	

Maryland State Department of Education
Division of Career and College Readiness
200 West Baltimore Street
Baltimore, MD 21201-2595

Appendix B:
CTE Cluster Teams

Regional Coordinators are the first point of contact in the CTE program development and amendment process. Listed below are the members of each of the 10 career cluster teams:

Arts, Media and Communication ***Marquita Friday and Instructional Branch*** Rosemary Bitzel Luke Rhine	**Health and Bioscience** ***Lynne Gilli and Instructional Branch*** Nina Roa Chuck Wallace
Business Management and Finance ***Bridgette Sloan and Student and Assessment Services Branch*** Terence Mayo	**Human Resource Services** ***Jeanne-Marie Holly and Systems Branch*** Mike Beck
Consumer Service, Hospitality and Tourism ***Marquita Friday and Instructional Branch*** Nina Roa	**Information Technology** ***Pat Mikos and Student and Assessment Services Branch*** Matt Koerner Terence Mayo
Construction and Development ***Pat Mikos and Student Assessment Branch*** Chuck Wallace	**Manufacturing, Engineering Technology** ***Lynne Gilli and Instructional Branch*** Luke Rhine Marquita Friday
Environmental, Agriculture and Natural Resources ***Kathy McNerney and Systems Branch*** Matt Koerner	**Transportation Technologies** ***Kathy McNerney and Systems Branch*** Mike Beck Nancy Hauswald
Career Research & Development crosses all clusters Susan Oskin	

Bold Italics = CTE Leadership and Associate Support
Marquita Friday, Bridgette Sloan & Kathy McNerney – Lead Specialists for cluster work

Appendix C:
Proposal Feedback Process

Local School System:	
Program Proposal Title:	**Recommended for Panel approval:** ☐ **Yes** ☐ **Yes with revisions** ☐ **No**
MSDE Cluster Team:	

Feedback from Cluster Team

Strengths/Commendations:

Recommendations/Requested Revisions:

Action required by the local school system if proposal *is recommended* for panel approval:

All revisions are due to Jeanne-Marie Holly, jmholly@msde.state.md.us, by: _____.
If revisions are not received by this date, the panel will consider the proposal withdrawn and it will need to be resubmitted for the next panel meeting.

Action required by the local school system if the proposal is *not recommended* for the panel:

1. Notify Jeanne-Marie Holly, jmholly@msde.state.md.us, by _____to advise if the local will make requested revisions to the program proposal or will withdraw the proposal.

2. If local school system (LSS) will make requested revisions, they are due to Jeanne-Marie Holly, jmholly@msde.state.md.us, by _____.

2a. Program proposal r*evisions not received by this date will cause the proposal to be considered withdrawn, and it will need to be resubmitted for the next panel meeting.*

Appendix D:
Maryland CTE Programs of Study

The same components that are found in a new CTE program proposal are included in proposals for Maryland CTE Programs of Study. The difference in these proposals is that staff members at the MSDE/DCCR have reviewed the programs against rigorous criteria. For programs that meet the criteria, DCCR staff members develop a consistent proposal for completion by the Local Director of CTE. Thus, the program achieves state approval in an expedited manner since an external partner, program provider, or other organization does most of the development steps.

The criteria for identifying Maryland CTE Programs of Study are shown in Figure 1. The form is used by MSDE/ DCCR staff members and cluster teams to recommend potential programs to the CTE leadership team for approval. Local Directors of CTE are encouraged to recommend programs for review by MSDE cluster teams.

Figure 1

Evaluation Criteria to Identify Maryland CTE Programs of Study (for use by MSDE)

Date: _____

Name of Evaluator: _____

Program Title: _____

Name of Telephone Contact: _____

Notes: _____

MSDE uses the following criteria to inventory the pluses and minuses of potential CTE programs. Supplement the inventory by contacting a representative of the sponsoring organization to discuss the program's strengths and weaknesses. If available, evaluate the provider's website regarding the quality of the program information. The evaluation criteria assist in determining whether or not to recommend the program to the CTE Leadership Team for approval.

Yes	No	Criteria
		1. Standards-Based Curriculum
		a. Aligned to National Technical Skills Standards Source:
		b. Aligned to Academic Standards Source:
		c. Aligned to Skills for Success Source:
		2. Curriculum Development and Dissemination
		a. Frequently updated – How Often:
		b. Provides scope and sequence.
		c. Includes Units, Lesson Plans, and Objectives.
		d. Includes worksheets and PowerPoint presentations.
		3. Oversight/Quality Assurance
		a. Operates under a signed agreement with provider.
		b. Requires a school certification process to ensure quality of program implementation.
		c. Requires a state partnership team.
		d. Required a program advisory committee.
		4. Value-Added Opportunities
		a. Leads to advanced placement in college through articulated credit, dual enrollment, transcripted college credit, or credit by examination.
		b. Offers a valid and reliable end of course/program assessment.
		c. Leads to a certificate, license, or other credential. Identify:
		d. Includes work-based learning experiences or an industry-mentored culminating project.
		5. Professional Development and Technical Assistance to Teachers
		a. Requires orientation and professional development to prepare teachers planning to teach. Notes:
		b. Provides technical assistance throughout program implementation. Notes:
		c. Conducts periodic refresher courses for teachers.
		6. Program Sustainability
		a. Includes cost estimates for program implementation.
		b. Identifies start up and maintenance costs for equipment.
		c. Includes estimate of annual ongoing costs for consumable materials and supplies.

For items checked “no” – indicate ways to close the gaps in the space provided.

Staff Recommendations to the Career and Technology Education Leadership Team:

_ Consider implementing the program as developed.

_ The following enhancements are recommended before implementing this program:

Electronic copies of all Maryland CTE Programs of Study are available to download from www.marylandpublicschools.org. The contents of the proposals are consistent with the required components of a new CTE program. The DCCR will provide templates to CTE Local Directors for completion as Maryland CTE Programs of Study are developed.

Once completed and signed, in **BLUE** ink, upload all documents to DocuShare in the appropriately named folder, i.e., Maryland Programs of Study, Perkins Grant, Reserve Fund etc. Then send an email to Jeanne-Marie S. Holly at jmholly@msde.state.md.us and copy your Regional Coordinator, indicating which document has been uploaded and is ready for routing and review.

Uploaded documents showing the signatures in BLUE ink are considered originals and no copies need to be mailed. Otherwise, the documents requiring signature must be signed in BLUE ink and submitted through the mail to Jeanne-Marie Holly at:

Jeanne-Marie S. Holly, Program Manager
CTE Systems Branch
Maryland State Department of Education
Division of Career and College Readiness
200 West Baltimore Street
Baltimore, Maryland 21201-2595

Glossary

All Aspects of the Industry

All aspects of the industry mean strong experience in, and comprehensive understanding of, different aspects of the industry that the individual is preparing to enter. Instruction should cover planning, management, finances, technical and production skills, underlying principles of technology, labor issues, and health and safety as follows:

- Planning – various forms of ownership, including cooperatives and worker ownership, and the relationship of the industry to economic, political, and social context.
- Management – methods typically used to manage enterprises over time, methods for expanding and diversifying workers' tasks, and broadening worker involvement in decisions.
- Finance – ongoing accounting and financial decisions, and different methods for raising capital to start or expand enterprises.
- Technical and Production Skills – specific production techniques, alternative methods for organizing the production work, including methods which diversify and rotate workers' jobs.
- Underlying Principles of Technology – integrated study across the curriculum of the mathematical, scientific, social, and economic principles that underlie the technology.
- Labor Issues – worker rights and responsibilities, labor unions and labor history, and methods for expanding workers' roles.
- Community Issues – the impact of the enterprise and the industry on the community, and the community's impact on and involvement with the enterprise.
- Health, Safety, and Environmental Issues – in relation to both the workers and the larger community.

All Students

The term "all students" means both male and female students from a broad range of backgrounds and circumstances, including disadvantaged students, students with diverse racial ethnic, or cultural backgrounds, American Indians, Alaska Natives, Native Hawaiians, students with disabilities, students with limited English proficiency, migrant children, school dropouts, and academically-talented students.

Apprenticeship (Registered)

See Work-Based Learning.

Articulation Agreement

The term "articulation agreement" means a written commitment that is agreed upon at the State level or approved annually by the lead administrators of: (1) a secondary institution and a postsecondary educational institution; or (2) a sub-baccalaureate degree granting postsecondary educational institution and a baccalaureate degree granting postsecondary educational institution and, to a program that is designed to provide students with a non-duplicative sequence of progressive achievement leading to technical skill proficiency, a

credential, a certificate, or a degree; and linked through credit transfer agreements between the two institutions described in (1) and (2).

Blended Instruction

Blended instruction is the integration of academic and occupational concepts to provide students with a more coherent program of study. Blended Instruction allows every student to participate in challenging and purposeful studies that blend theory and application. Every student will demonstrate mastery of work-related and life skills required for a smooth transition into a globally competitive, technologically advanced, and service oriented society.

Career

The sequence of occupations and other life roles that combine to express one's commitment to work in a person's total pattern of self-development (Super 1976). Each person has one lifelong career which is unique to each of us.

Career and Technology Education (or High Quality CTE)

The term 'career and technology education' means organized educational activities that offer a sequence of courses that provides individuals with coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions. CTE programs provide technical skill proficiency, an industry-recognized credential, a certificate, or an associate degree; and may include prerequisite courses (other than a remedial course). CTE programs include applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of an industry, including entrepreneurship, of an individual.

Career and Technology Student Organizations (CTSO)

Organizations for individuals enrolled in CTE programs that engage students in activities as an integral part of the instructional program. Such organizations may have state, national, and international units that aggregate the work and purposes of instruction in career and technology education at the local level. Examples of DCCR-supported organizations are DECA, FBLA, FFA, and SkillsUSA as described in the *Policies and Procedures for Implementing Career and Technology Education Student Organizations.*

Career Guidance and Academic Counseling

The term 'career guidance and academic counseling' means guidance and counseling that provides access for students (and parents, as appropriate) to information regarding career awareness and planning with respect to an individual's occupational and academic future; and provides information with respect to career options, financial aid, and postsecondary options, including baccalaureate degree programs.

Career Development

Career Development is the process through which an individual comes to understand his/her place in the world of work including the psychological, sociological, educational, physical,

economic, and chance factors that combine to influence the nature and significance of work in an individual's life.

Career Pathway/Major

Career Pathway/Major means a planned sequence of courses, both academic and technical, in a program of study that prepares a student for further education and a career. Academic content is aligned to the Maryland's State Curriculum. A CTE program of study includes the sequence from grades nine through 12 and two or more years of postsecondary education courses. The sequence of courses reflects the current state and local high school graduation requirements.

Career Management

Career Management is the active and conscious participation in shaping one's career and accepting responsibility for the activities and choices made toward that end.

Career Portfolio

Career Portfolio is a valuable tool to expand self-knowledge, promote informed career decision-making, help students and adults make connections between education and employability skills, and document their skills. The actual portfolio can take several forms (e.g., a folder, a notebook binder, or computer disc). There are two broad types of career portfolios: those that have career development as their primary focus and those that have employability skill demonstration as their major focus.

A well designed career development portfolio guides one through the career development process serving as a sequential career-planning journal. It is both a process and a product. Supporting activities are provided as part of a process that helps students and adults reflect on who they are, make informed decisions, establish both career and educational goals, and craft a career plan for high school and beyond. The portfolio also contains some artifacts that showcase achievements and skills.

The skill demonstration or employment portfolio is a structured presentation of a person's skills, best work samples, awards, achievements, certifications, and letters of recommendation. It usually contains a resume. The skill demonstration portfolio is designed to support with documentation a student's comments during employment, college admission, and scholarship interviews.

CTE Program Completer

Any student who meets all of the requirements outlined in the MSDE approved proposal for a CTE program is considered to be a CTE Completer. CTE programs typically include a minimum of four occupational credits in a planned, sequential program of study that integrates academic, technical, and workplace readiness skills. Most program completers also engage in one or more supervised work-based learning experiences.

CTE Program Concentrator

Secondary CTE program concentrators are those students who have enrolled in a designated concentrator course as described in the *Specifications Manual for Student Enrollment.* The concentrator course is one in a sequence of courses in a completer program and occurs after the student has completed 50 percent of the CTE program and represents the student's intent to be a CTE program completer.

CTE Program Developers

Anyone who works with the program advisory committee to develop high-quality CTE programs in accordance with the DCCR-prescribed process is a CTE program developer.

CTE Program Enrollee

Any high school student enrolling in at least one course that is part of a state-approved CTE program of study is considered a CTE enrollee. Procedures for reporting enrollees are described in the *Specifications Manual for Student Enrollment.*

Career Exploration

Career exploration is offered to assist students with career decision-making and facilitate the transition to postsecondary study and the world of work. Through planned activities, students assess career interests and work values; explore career clusters through interviews, job shadowing, speakers, and field trips; develop educational plans and course sequences; and develop resumes and portfolios to document educational and technical experiences needed to attain career goals.

Classification of Instructional Programs (CIP)

The program title identified by the local school system is used in the student course selection handbook. A resource for program titles is the Classification of Instructional Programs (C.I.P.) published by the National Center for Education Statistics and available in electronic format at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2002165.

Cluster Frameworks and Pathways

Career and technology education programs typically provide pathways for students to pursue within one of Maryland's ten cluster areas:

1. Consumer Service, Hospitality and Tourism
2. Business Management and Finance
3. Manufacturing, Engineering Technology
4. Information Technology
5. Environmental, Agricultural and Natural Resources
6. Health and Biosciences
7. Arts, Media and Communication
8. Transportation Technologies
9. Human Resource Services
10. Construction and Development

A **career cluster** is a grouping of occupations and industries based on shared features or "core functions." The cluster framework defines the scope of the industry, including the core business functions that are critical to the competitiveness and growth of the industry in

Maryland. Career clusters provide a tool for schools to organize into small learning communities, academies, or magnet schools (through the use of pathways).

Career pathways are related programs of study that provide a multi-year sequence of career guidance, coursework, and work-based learning experiences that enable students to make more informed career choices. Pathways are derived from the core functions of the cluster and include the major activities of each function.

Career and technology education programs of study are derived from the cluster framework and its accompanying pathways. Programs consist of a coherent sequence of secondary and postsecondary courses leading to a high school diploma, postsecondary degree, and/or an industry certification or credential.

Maryland's Ten Career Cluster Frameworks can be found at the following link: http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/career_clusters/

Competency/Performance-Based Instruction

A methodology of instruction that: (1) identifies the competencies needed for on-the-job performance; (2) informs students and teachers of precise and detailed learning objectives required to complete these competencies; (3) emphasizes high performance standards in testing, course requirements; and (4) facilitates learning by letting each student master the tasks prior to advancing to another. Also known as performance-based instruction.

Comprehensive Local School System Master Plan

The *Bridge to Excellence in Public Schools Act,* signed into law in 2002, requires each school system to develop a comprehensive master plan that describes the goals, objectives, and strategies that will be used to improve student achievement for all students and to eliminate achievement gaps between subgroups of students. In addition, the Master Plan must clearly define how the local school system will meet state and local performance standards in each segment of the student population. By design, *Bridge to Excellence* requires school systems to integrate state, federal, and local funding initiatives and weave them into a comprehensive master plan. Specifically, the legislation requires the local school system to include in its master plan the goals, objectives, and strategies regarding the performance of students enrolled in career and technology courses and programs.

Cooperative Career and Technology Education

The term 'cooperative education' means a method of education for individuals who, through written cooperative arrangements between a school and employers, receive instruction, including required rigorous and challenging academic courses and related career and technology education instruction, by alternation of study in school with a job in any occupational field, which alternation shall be planned and supervised by the school and employer so that each contributes to the education and employability of the individual; and may include an arrangement in which work periods and school attendance may be on alternate half days, full days, weeks, or other periods of time in fulfilling the cooperative program.

Core Indicators of Performance - Secondary Level

Each eligible agency shall identify in the State plan core indicators of performance for career and technical education students at the secondary level that are valid and reliable, and that include, at a minimum, measures of each of the following:

(i) Student attainment of challenging academic content standards and student academic achievement standards, as adopted by a State in accordance with section 1111(b)(1) of the Elementary and Secondary Education Act of 1965 and measured by the State determined proficient levels on the academic assessments described in section 1111(b)(3) of such Act.

(ii) Student attainment of career and technical skill proficiencies, including student achievement on technical assessments, that are aligned with industry recognized standards, if available and appropriate.

(iii) Student rates of attainment of each of the following:
   (I) A secondary school diploma.
   (II) A General Education Development (GED) credential, or other State-recognized equivalent (including recognized alternative standards for individuals with disabilities).
   (III) A proficiency credential, certificate, or degree, in conjunction with a secondary school diploma (if such credential, certificate, or degree is offered by the State in conjunction with a secondary school diploma).

(iv) Student graduation rates (as described in section 1111(b)(2)(C)(vi) of the Elementary and Secondary Education Act of 1965).

(v) Student placement in postsecondary education or advanced training, in military service, or in employment.

(vi) Student participation in and completion of career and technical education programs that lead to non-traditional fields.

Core Indicators of Performance - Postsecondary Level

Each eligible agency shall identify in the State plan core indicators of performance for career and technical education students at the postsecondary level that are valid and reliable, and that include, at a minimum, measures of each of the following:

(i) Student attainment of challenging career and technical skill proficiencies, including student achievement on technical assessments that are aligned with industry-recognized standards, if available and appropriate.

(ii) Student attainment of an industry-recognized credential, a certificate, or a degree.

(iii) Student retention in postsecondary education or transfer to a baccalaureate degree program.

(iv) Student placement in military service or apprenticeship programs or placement or retention in employment, including placement in high skill, high wage, or high demand occupations or professions.

(v) Student participation in, and completion of, career and technical education programs that lead to employment in non-traditional fields.

Credit by Examination

Course or unit credit granted for demonstrated proficiency in a given area as determined by examination.

Dual Completer or Dual Completion

Students who complete both a CTE approved program of study and meet the University System of Maryland's (USM's) admissions requirements are described as dual completers.

Employability Skills

Employability skills are skills that are essential for job success, but are not necessarily linked to specific occupational knowledge. In Maryland, these are known as *Skills for Success* and include: interpersonal, communication, thinking, technology and learning.

Industry-Mentored or Capstone Project

The capstone project is typically completed as a culminating effort by students to demonstrate the cumulative learning that has occurred during the entire CTE program of study. Students work directly with industry mentors, as individuals or in teams, to receive advice and guidance in the development of their projects. Students in CTE may complete an industry-mentored project in addition to or instead of participating in a work-based learning experience.

Industry-Recognized Credentials

An official document recognized by a profession that shows student mastery of the necessary skills to either enter into the profession and/or provide an advantage when entering a profession.

Internship

See Work-Based Learning.

Job

A job is a paid position with specific duties, tasks, and responsibilities in a particular place of work (e.g., photographer at ABC Pictures).

Job Shadowing

Job shadowing, part of career exploration activities, is developmentally appropriate from kindergarten through adulthood. Through job shadowing, a student observes an employee to learn about a particular career cluster or industry. Job shadowing helps middle and elementary school students explore a range of career opportunities. Job shadowing experiences assist high school students with the exploration and selection of a career major. **Since job shadowing is exploratory in nature, it does not qualify for credit as a work-based learning experience as part of an approved CTE program.**

Local Advisory Council (LAC)

The LAC is responsible for advising the overall system of CTE. Members participate in long-range, strategic planning to help position the system of CTE to obtain visibility, credibility, and resources. The LAC members review labor market demand data and assist the system in identifying critical shortage areas and economic development needs. Members of the LAC assist in determining which clusters to implement, which programs to offer/improve. They evaluate the program with an eye toward continuous improvement and provide annual report on the system's accomplishments and needs.

Local CTE Plan for Program Improvement

The Local CTE Plan for Program Improvement is a comprehensive plan, which describes how career and technology education programs will be improved. This plan requires a thorough analysis of data and serves as the catalyst to identify program improvement strategies that will enable the school system or community college to achieve local to achieve local performance targets. These targets are aligned with the core indicators of performance as required in the **Carl D. Perkins Career and Technical Education Improvement Act of 2006, Public Law 109-270.** All available sources of revenue are listed, along with specific programs, identified by CIP number and sites where the programs are offered. In addition, this plan requires a description of the planned improvement, the desired outcomes, how the outcomes will be measured, and other required elements as described in the federal statute.

List A

List "A" is the list of CTE programs offered by local school systems and community colleges and is tied to the Federal Government's CIP code system. This list forms the basis of student enrollment and enrollment data processing by the MSDE. List "A" programs are eligible to use federal funds under the State Plan for Career and Technology Education and the Carl D. Perkins Career and Technical Education Improvement Act of 2006. List "A" is verified on an annual basis to ensure that programs are added or deleted as needed.

Secondary CTE programs of study are added to List "A" through an approval process described in the *Policies and Procedures for the Development and Continuous Improvement of Career and Technology Education Programs*. This includes state developed CTE programs of study as well as locally developed CTE programs of study that have been approved by the MSDE through the DCCR.

Postsecondary CTE programs of study are added to List "A" after the program has been approved by the Maryland Higher Education Commission and the community college requests that it be added. This includes certificate and degree programs in career and technical education (occupational) areas.

Maryland CTE Programs of Study

A Maryland CTE Program of Study is a structured sequence of academic and CTE courses leading to a postsecondary-level credential and employment. It provides students with a planned, sequential program of study that blends academic, technical, and workplace skills to prepare them for careers and further education. Maryland CTE Programs of Study are based on the proposal development process with involvement by one or more of the cluster teams

in DCCR and meets all or most of the criteria outlined In Appendix D. The cluster team leader convenes or endorses a design team consisting of employers as well as secondary and postsecondary educators. Approved CTE Programs of Study demonstrate the levels of accountability, structure, and support to ensure program quality and replication. The approval process is simplified for local CTE directors since the contents of the program are standardized. When local school systems adopt a Maryland CTE Program of Study, all of the program requirements must be adhered to without modification.

Occupation

An occupation is a cluster of jobs with common characteristics and requiring similar skills (e.g., photographer).

Program Advisory Committees (PACs)

PACs are composed of representatives of a cluster/pathway/program who can advise on the development of high-quality CTE programs that have enough breadth, depth, and academic rigor to constitute a completer program. Members should include employers, local workforce development representatives, economic development personnel, business, or labor representatives, and the remainder should include secondary and postsecondary, academic and technical educators and other stakeholders.

Reliable Assessments

Assessment results must be both reliable and valid. An assessment is reliable if it yields results that are accurate and stable. A reliable assessment is one which consistently achieves the same results with the same (or similar) cohort of students. Reliability relates to the consistency of an assessment. A reliable assessment is one which consistently achieves the same results with the same (or similar) cohort of students. Various factors affect reliability – including ambiguous questions, too many options within a question paper, vague marking instructions and poorly trained markers.

Skills for Success

Maryland's *Skills for Success* include communication, thinking, technology, learning, and interpersonal skills (see marylandpublicschools.org).

Sequence of Courses

Indicates the planned sequence of courses, both academic and technical, in the program. This will include the sequence of courses from grades nine through 12, and for articulated CTE programs of study, the courses in the two- or four-year program of study. The secondary sequence of courses reflects the current state and local high school graduation requirements.

Skill Standards

A skill standard specifies the knowledge and competencies required to perform successfully in the workplace. Standards are developed along a skill continuum ranging from general work readiness skills, and core skills or knowledge for an industry, to skills common to an

occupational cluster, and specific occupational skills. Standards may cover basic and advanced academic competencies, employability competencies, and technical competencies. Development of these standards is tied to efforts to certify students' and workers' skills for a given career pathway.

Special Populations

The term 'special populations' means individuals with disabilities; individuals from economically disadvantaged families, including foster children; individuals preparing for non-traditional fields; single parents, including single pregnant women; displaced homemakers; and individuals with limited English proficiency.

Transcript

An official document of courses taken showing the final grade received. Official transcripts must bear a seal of the college and signature of a designated college official.

Valid Assessment

A valid assessment is one which measures what it is intended to measure. For example, it would not be valid to assess driving skills through a written test alone. A more valid way of assessing driving skills would be through a combination of tests that help determine what a driver knows, such as through a written test of driving knowledge, and what a driver is able to do, such as through a performance assessment of actual driving. Teachers frequently complain that some examinations do not properly assess the syllabus upon which the examination is based; they are, in effect, questioning the validity of the exam. Assessment results must be both reliable and valid.

Work

Work is a conscious effort aimed at producing goods or services for the benefit of self or others. Work may be paid or unpaid.

Work-Based Learning (Cooperative Career and Technology Education)

Activities at the high school and college levels that involve actual work experience and connect classroom learning to work. This is an all-encompassing term that includes: apprenticeships, cooperative education, and internships.

Supervised work-based learning (WBL) experiences are designed to provide meaningful work experience as an integral part of the regular career and technology curricula. They require a partnership involving the education system, business and industry, community agencies and organizations, and the family.

Cooperative CTE is a method of education for students who, through written cooperative arrangements between a school and employers, receive instruction, including required rigorous and challenging academic courses and related CTE instruction, by alternating study in school with placement in a related career field. These experiences are organized around a training plan that is cooperatively developed by the school and employer to add value to and extend a student's career preparation. This instruction is planned, organized, and

coordinated to assure that each component contributes to the student's education and employability. Cooperative education is provided in one of three major formats: capstone, integrated, and diversified. Diversified education has been revised and is a Maryland CTE Program of Study called Career Research and Development.

- Capstone WBL: The on-the-job component of the program is subsequent to the in school, skill development component. Students are placed at training sites that have the potential to extend and refine competencies that are developed in the in-school component.

- Career Research and Development: The major portion of skill development is provided through on-the-job work experience based on a training agreement (signed by the parent, student, employer, and work-based learning coordinator). The in-school component is concurrent with the on-the-job component and is general in nature rather than directly related to the occupation or placement. The program consists of at least two in-school credits and two on-the-job. The occupational placements are targeted employment opportunities for which an in-school career and technology program does not exist. This option exists when CTE programs are over-enrolled or when a program is unavailable for students.

- Integrated WBL: The on-the-job component of the program is entered after some in-school skill development, and the in-school skill development component is maintained concurrent with on-the-job experience. Students are placed at training sites that have potential to complement the in-school component.

- Internships: Internships are short-term, paid or unpaid experiences that offer students a chance to work under the tutelage of employers and experience on-the-job training in a mentoring relationship. Students work with an employer to learn about a particular industry or career pathway. Workplace activities may include special projects, a sample of tasks from different jobs, or tasks from a single career pathway.

- School-Sponsored or School-Based Enterprise or In-School Clinic: A school-sponsored enterprise or clinic is an enterprise in which goods or services are produced by students as part of their school program. School-sponsored enterprises or clinics typically involve students in the management of a project that may involve the sale of goods or services for use by others. Enterprises may be undertaken on or off the school site, but are always part of the school's program.

- Apprenticeship: Apprenticeship is a voluntary, industry-driven program sponsored by employers, employer associations, and jointly by management and labor. An apprentice, as an employee, receives supervised, structured, on-the-job training combined with related technical instruction in a specific occupation. Apprenticeship is open to anyone age 16 or older; however, an employer may set a higher entry age. Individuals must be age 18 to apprentice in specified hazardous occupations. A training program must be at least 2,000 hours in duration to be considered as an apprenticeable occupation. The Maryland Apprenticeship and Training Council is the registration agency for apprenticeship programs. The Apprenticeship and Training Council has approved and registered programs in 207 occupations.

For additional information, contact:
Division of Labor and Industry
Maryland Apprenticeship and Training Program
1100 North Eutaw Street - Room 606
Baltimore, MD 21201
(410) 767-2246 Fax: (410) 767-2220
e-mail: matp@dllr.state.md.us