Maryland CTE Program of Study

## Construction Design and Management (CDM)

**Secondary CTE Program of Study 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 (LSS) 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: **15.1350** | | Pathway  Option 1: -- | | | Pathway  Option 2: -- | | Pathway  Option 3: -- |
| MSDE Cluster Title: | | **Construction and Development** | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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 |  |
| 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 |  |
| 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 |  |
| 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 |  |
| 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 |  |
| 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 |  |
| 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 |  |
| 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:**   * The National Center for Construction Education and Research (NCCER) * American Institute of Architects (AIA) |
| **Program Overview:**  The ***Construction, Design, and Management*** (CDM) program is a four-course project-based CTE Program of Study. Project-based learning (PBL) is a dynamic classroom teaching method in which students actively explore real-world problems and challenges to acquire a deeper knowledge about the subject matter. Students gain knowledge and skills by completing and revising projects that address complex questions, problems, or challenges.  The instructor doubles as a facilitator, working with students to frame worthwhile questions, structuring meaningful tasks, coaching both knowledge development and social skills, and carefully assessing what students have learned from the experience.  PBL also creates opportunities for groups of students to collectively gather information and think critically, thus developing essential collaboration skills required in the workplace.  Students will develop an understanding of the built world through the design and construction process.  Each course uses the project-based learning approach to advance students’ understanding of the *design-build-maintain* process.  Advanced architectural drafting and design skills are developed through lab-based instruction using Autodesk software tools (AutoCAD and Revit Architecture).  Throughout the program, students will develop a portfolio to demonstrate knowledge of each phase of the design and construction management process.  Students will also have the opportunity to earn industry certification in AutoCAD and/or Revit.  Students enrolled in this program are expected to:   * Understand the *design-build-maintain* process and the construction industry; * Identify and use the materials and tools used in the *design-build-maintain* process; * Understand the construction process and the interaction of skilled trades, designers and managers; * Demonstrate the use of basic and advanced design principles; * Create multiple design plans (architectural, civil and mechanical) for construction projects; * Understand Building Information Modeling (BIM) technology to connect design and construction; and * Demonstrate project management skills including designing, scheduling and completing an entire construction project.   **The four-course sequence:**   * **Course I – Introduction to Construction Design and Management:** Provides an overview of the design and construction process as well as an introduction to the many career options within the field of construction.  At completion, students are given a teacher-designed end-of-course assessment. * **Course II – Principles of Construction Design:** Provides students with an in-depth understanding of the construction design process.  At completion, students are given a teacher-designed end-of-course assessment, and have the knowledge and skills to sit for AutoCAD Certification. * **Course III – Advanced Design and 3D Modeling:** Students work in teams to fully develop a construction management plan with designs for a pre-determined site utilizing BIM technology.  After successful completion of this course, students have the knowledge and skills to sit for either or both AutoCAD and/or Revit certifications. * **Course IV  – Advanced Construction Management:** Continues to build on an understanding of the construction design process in a capstone project, with advanced BIM knowledge and skill in construction management.  At completion, capstone projects are assessed.   **End-of-Course Assessments and Certifications:**  The first three courses, *Introduction to Construction Design and Management,* *Principles of Construction Design*, and *Advanced Design and 3D Modeling,* prepare students to take exams for AutoCAD and Revit credentialing. These courses include the use of AutoCAD to develop architectural plans using industry standards for design and documentation.  As students progress into the advanced courses and use BIM technology, they may also prepare for Revit Architecture certification.  **Requirements for program completion:**   1. Complete Courses I, II, and III, ***and*** 2. Complete Course IV (capstone project), *or* (b) complete a program-related internship, *or* (c) complete a program-related college course (dual enrollment). |

**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 I: Introduction to Construction Design and Management**  Course Description:  This first of four 1-credit courses provides an overview of the design and construction process as well as an introduction to the many career options within the field of construction. Students will be introduced to core concepts in design and construction including: construction methods and materials; fundamental elements of design; and innovative technologies including Green Construction and Design. Students will be introduced to design software as they complete basic design projects, such as floor plans. In addition, students will begin to develop a better understanding of the fields’ interrelationships. Through a series of increasingly complex projects, students will:   * Discuss potential careers and the education needed in Construction Design and Management; * Understand the interdependence of architectural designers, skilled trades and construction managers; * Demonstrate the use of computer-aided design (CAD) and drafting tools; * Read and develop technical drawings, including understanding types of plans used in construction; * Demonstrate the use of design principles and understanding of materials in developing basic plans; * Understand construction methods and materials, including building codes, safety regulations, and components of Green Construction; and * Develop a series of plans and documentation for multiple design projects.   **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 II: Principles of Construction Design**  Course Description:  This second of four 1-credit courses provides students with an in-depth understanding of the construction design process. Students will complete a series of increasingly complex construction design projects in which they incorporate all aspects of the construction process, including zoning and regulation requirements; surveying; and project planning. Students will use design software to generate site plans (topography) as well as detailed building plans. The use of portfolios is introduced as a means of showing the developmental stages of a design project. Students will use 3D computer software to complete projects. Through a series of increasingly complex projects, students will:   * Understand principles of construction management and the *design-build-maintain* process, including technical requirements, cost estimating, and quality control; * Read and develop technical drawings, including understanding types of plans used in construction; * Demonstrate the use of computer-aided design (CAD) and drafting tools (2-D and 3-D drawings); * Demonstrate the use of design principles and understanding of materials in construction surveying and the development of architectural plans; * Understand construction methods and materials, including building codes, safety regulations, and components of Green Construction; * Understand the use of new technologies and innovations in the design and build process, including energy efficiency standards and Building Information Modeling (BIM); * Conduct a carbon footprint analysis and energy audit for an existing structure; * Develop technical drawings for mechanical and electrical systems; and * Develop a portfolio, including a series of plans and documentation for a one-story structure.   **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) Autodesk – AutoCAD User  Nationally recognized examination: (specify) |
| **Course III:** [**Advanced Design and 3-D Modeling**](mk:@MSITStore:D:\data\CEA\CEA_2006.chm::/Unit_3/Unit_3Project_Planning.htm)  Course Description:  In this third of four 1-credit courses, students will work in teams to fully develop designs and a construction management plan for a pre-determined site. In this project, students begin with the legal description and topography of the site and develop a proposal for development. The construction design project must meet the client’s needs, budget, and the site characteristics. Students will generate a series of plans to be included with the proposal for submission to an industry review panel for approval. Through a series of increasingly complex projects, students will:   * Understand principles of construction management and the *design-build-maintain* process, including technical requirements, cost estimating, and quality control; * Read and develop technical drawings, including understanding types of plans used in construction; * Demonstrate the use of computer-aided design (CAD) and drafting tools (2-D and 3-D drawings); * Demonstrate the use of design principles and understanding of materials in developing architectural plans; * Understand construction methods and materials, including building codes, safety regulations, and components of Green Construction; * Understand the use of new technologies and innovations in the design and build process, including energy efficiency standards and Building Information Modeling (BIM); * Conduct a carbon footprint analysis and energy audit for an existing structure; * Develop technical drawings for mechanical and electrical systems; and * Develop a portfolio, including a series of plans and documentation for a one-story structure.   **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) Autodesk – AutoCAD and/or Revit  Nationally recognized examination: (specify) |
| **Course IV:** [**Advanced Construction Management**](mk:@MSITStore:D:\data\CEA\CEA_2006.chm::/Unit_4/Unit_4_Site_Planning.htm)  Course Description:  This fourth and final course builds on an understanding of the construction design process to advanced knowledge and skill in construction management. In this course, students will be required to work in teams to complete a series of development projects from existing plans. The year-long ***capstone project*** will focus on building codes and standards, coordination of the construction process, estimating, planning and scheduling; and site management. Through a series of increasingly complex projects, students will:   * Document principles of construction management and the *design-build-maintain* process, including technical requirements, cost estimating, and quality control; * Develop a series of technical drawings, including site plans, mechanical systems, building plans, and a BIM design for a completed project; * Demonstrate the use of advanced design principles and understanding of the design-build process; * Document construction methods and materials, including compliance to building codes, safety regulations, and principles of Green Construction and energy efficiency; * Incorporate the use of new technologies and innovations in the design and build process, including energy efficiency standards, modular construction and Building Information Modeling (BIM); * Demonstrate the use of construction estimating and contracting to develop a project schedule; * Document construction management requirements including project schedules, environmental safety requirements, quality control, cost-benefit analysis, and labor relations; and * Develop a portfolio, including a series of plans and documentation for a full site development project.   **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)  **NOTE**: There are 3 completion options for this final course:   1. Successfully complete Course IV, ***or*** 2. Successfully complete a program-related internship, ***or*** 3. Successfully complete a program-related college course (dual enrollment). |

**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) Autodesk – AutoCAD and/or Revit Certification

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:** | **Construction Design and Management (CDM)** | | | **CIP Number  (For MSDE Use)** | | **15.1350** |
| **Graduation Requirements** | **Grade 9** | **Grade 10** | **Grade 11** | | **Grade 12** | |
| English - 4 | English 9 | English 10 | English 11 | | English 12 | |
| Social Studies - 3 | US Government | World History | US History | | Government and Economics | |
| Mathematics - 3 | Algebra 1 | Geometry | Algebra 2 | | Trigonometry or Pre-calculus | |
| Science - 3 | Physical Science | Biology | Chemistry | | Physics | |
| Physical Education -.5  Health Education - .5 | Physical Education (.5) | Health (.5) |  | |  | |
| Fine Arts - 1 | Fine Arts (.5) | Fine Arts (.5) |  | |  | |
| Technology Education - 1 | Foundations of Technology |  |  | |  | |
| CTE Completer Program – 4  \*concentrator course |  | I-Introduction to Construction Design & Management  (1 credit) | II-Principles of Construction Design (1 credit) | | \*III-Advanced Design & 3-D Modeling  (1 credit)  **and**  IV-Advanced Construction Management  (1 credit)† | |
| **If LSS sequence differs from the State-approved sequence in the previous row, identify the LSS sequence here. in an attachment, provide a justification for the variation.** |  |  |  | |  | |
| Foreign Language - 2  and/or Advanced Tech Ed - 2 | Foreign Language | Foreign Language |  | |  | |

†Completion options that replace Course IV: (1) complete a program-related internship, ***or*** (2)complete a program-related college course (dual enrollment).

**Program Sequence Matrix**

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.  SAMPLE  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: Construction Management, AAS**  **College/Institution: Montgomery College** | | | |
| **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** | |
| EN 101  PHYS 203  MA 180  CT 130  CT 131  CT 183 | Technical Read/Writing  General Physics I  Pre-Calculus  Constr. Methods & Materials (3)  Construction Plan Reading (3)  CAD | EN 201  PHYS 204  MA 181  CT 190  CT 212  CT 271 | Technical Read/Writing  General Physics II  Calculus  Comp. Applications in Const. (3)  Construction Methods  Surveying |
| **Semester 3** | | **Semester 4** | |
| AR 103  EN 201  Elective  CT 286  CT 283 | Arts/Humanities  English Lit.  Behavioral Science  Construction Plan/Scheduling  Mechanical/Electrical Systems | Econ 201  SP 108  Elective  CT 299  CT 284 | Princ. Of Econ I  Speech Foundations  Business Course  Professional Practicum  Construction Estimating. |
| **Provide a list of career options for students who complete the program:**  Draftsperson/Designer  Engineering (Field, Project, Civil, etc)  Architect (landscape, residential)  Equipment Operator Estimator  Foreman Inspector  Project Coordinator Project Manager  Safety Officer Scheduler  Supervisor Surveyor | | | |

**Program Sequence Matrix**

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 Titles: Construction Management or Architecture & Environmental Design (School of Architecture and Planning)**  **College/Institution: Morgan State University** | | | |
| **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.** | | | |
| **Construction Management** | | **Architecture & Environmental Design** | |
| CMGT 241 | Introduction to Construction Management  (3 credits) | ARCH 103 | Communication Skills I  (3 credits) |
| **Provide a list of career options for students who complete the program:**  Draftsperson/Designer  Engineering (Field, Project, Civil, etc)  Architect (landscape, residential)  Equipment Operator Estimator  Foreman Inspector  Project Coordinator Project Manager  Safety Officer Scheduler  Supervisor Surveyor | | | |

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 | Morgan State University | Toward Bachelor Degree | 3 credits |
| Apprenticeship Approved by MATC\* |  |  |  |
| Certification(s) |  | Autodesk – AutoCAD  Autodesk – Revit |  |
| License |  |  |  |
| Degree |  |  |  |
| Other (specify) |  |  |  |

\*MD Apprenticeship and Training Council

**STEP 2F: INDUSTRY-MENTORED PROJECT OR WORK-BASED LEARNING (WBL) 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: |  |

STEP 3.1 - DATA SHEET: *Pathway Options*

|  |  |
| --- | --- |
| 1. | Construction, Design, and Management |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Credits per year per pathway option as reflected by Course Sequences | **9** | **10** | **11** | **12** | **TOTAL** |
| 1. Construction, Design, and Management |  | 1 | 1 | 2 | 4 |

**Total number of credits for program completion: 4**

STEP 3.2 - DATA SHEET: *Instructional Program Credit by Grade(s)*

STEP 3.3 - DATA SHEET: Career and Technology Education Program Sites

|  |  |  |
| --- | --- | --- |
| **Pathway Options** | **School Name(s) Sites** | **School Number** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |