Maryland CTE Program of Study

**Medium/Heavy Truck Technician (Diesel)**

**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, 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: | **Medium/Heavy Truck Technician (Diesel)** |
| Pathway Options: | 1. | 2. | 3. |
| Value Added [ ]  yes [ ]  no This program provides students the opportunity to earn early college credit. The academic and Options: technical course sequences for both secondary and postsecondary programs are included herein. X 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). X 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/DCTAL**

|  |  |
| --- | --- |
| Date Program Proposal received by CTE Systems Branch: |  |
| CTE Control Number: |  | Fiscal Year: |  |
| CIP Number: | Program: **47.0655**  | Pathway Option 1:  | PathwayOption 2:  | PathwayOption 3: |
| MSDE Cluster Title: |  |

|  |  |  |
| --- | --- | --- |
| **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):  |  |

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

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| 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):  |  |

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| --- | --- | --- |
| 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):  |  |

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| --- | --- | --- |
| Name: |  | Representation: |
| Title: |  | [ ]  Industry [ ]  Secondary [ ]  Postsecondary  |
| Affiliation: |  |
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| 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):  |  |

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| --- | --- | --- |
| 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.

[x]  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 Department of Labor, Licensing and Regulation (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 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.

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| **Indicate the title and source of the skills standards for this program: Medium/Heavy Truck Technician Program (Diesel); National Automotive Technicians Education Foundation (NATEF)** |

**Program Overview:**

The Medium/Heavy Truck Technician program is a CTE pathway program that combines technical, academic and workplace skills in an integrated curriculum in accordance with all National Automotive Technicians Education Foundation, Inc. (NATEF) guidance and directives. The program prepares students for further education and careers in the transportation equipment and medium/heavy truck industry. Upon completion of this program students will take all five NATEF/ASE Technician exams.

The program consists of the five required areas of study as identified in the NATEF Task Lists. These five required areas are: Diesel Engines, Suspension & Steering, Brakes, Electrical/Electronic Systems, and Preventive Maintenance. A CTE program can provide instruction in more than the five required areas but must offer a minimum of 705 hours of combined laboratory and classroom instruction as referenced in the policies document of the Medium/Heavy Truck Technical Training Program. **NOTE:** NATEF provides the process for certification of an instructional program only and is not associated with the accreditation role of other agencies. As such, NATEF provides task lists and does not endorse or recommend any curriculum.

Students participating in the Medium/Heavy Truck Technician Program will be able to:

1. Develop workplace (employability) skills by demonstrating mastery of required academic and performance skills;
2. Demonstrate the ability to perform all tasks in a safe and expedient manner;
3. Demonstrate the ability to identify appropriate industry procedure/reference/training manuals (both computerized and hard bound) to locate appropriate instructions and perform them according to guidance;
4. Perform all diagnostic and repair tasks in accordance with manufacturer’s recommended procedures;
5. Perform all diagnostic and repair tasks within the prescribed times derived from the flat rate manuals commonly used in the truck service industry; and
6. Demonstrate the ability to work individually and in teams to complete all of the required task list items within each of the five curricula.

The High School is expected to:

1. Maintain NATEF/ASE Program Accredition status through NATEF/ASE (If NATEF/ASE accredition is withdrawn, program approval will be withdrawn);
2. Ensure enrolled students take all related NA3SA end-of-course exams prior to program completion; and
3. Inform all students of the statewide articulation agreement with Penn College

**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.

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| **Course Title: Medium/Heavy Truck 1: Suspension & Steering, Brakes, and Preventative Maintenance (3 credits)****Course Description:** This course provides the student with the knowledge and skills necessary to pass the NATEF/ASE Medium/Heavy Truck Technician Exams for Suspension & Steering, Brakes, and Preventive Maintenace and immediately enter a career in this area and/or attend postsecondary education and/or training. Students develop diagnostic, technical, and academic skills through classroom instruction and hands-on maintenance applications in the above areas. Through theory and real-world experiences, students master the concepts and the ability to identify and perform necessary repair tasks utilizing the latest techniques and applications on Class 4 through Class 8 trucks and tractors. In addition, this course will address personal and environmental safety practices associated with clothing; respiratory protection; eye protection; entry level medium/heavy truck service technology principles and practices; hand tools; power tools/equipment; raising and supporting vehicles, safety principles and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.Students will understand and be able to perform: * 95% of all Priority 1 (P-1) items as identified by NATEF/ASE
* 70% of all Priority 2 (P-2) items as identified by NATEF/ASE
* 25% of all Priority 3 (P-3) items as identified by NATEF/ASE

Specifically, upon sucessful completion of this course, students will be able to: * Analyze and determine required and locally established safety precautions for the work to be performed;
* Evaluate and determine appropriate procedure, tools, and materials for proper diagnosis and repair;
* Operate pneumatic tools, compressor, lifts, hand tools, and related equipment necessary for the proper diagnosis and repair;
* Inspect, analyze and determine appropriate actions and repair procedures;
* Identify equipment maintenance requirements, determine causes and cures, and estimate the cost of repair; and
* Analyze and identify discrepancies and plan and execute all final repair related tasks for the following areas:

Suspension and Steering –* Steering Systems Diagnosis and Repair
* Steering Units Diagnosis and Repair
* Steering Linkage Inspection and Repair
* Suspension Systems Diagnosis and Repair
* Wheel Alignment Diagnosis, Adjustment, and Repair
* Wheels and Tires Diagnosis and Repair
* Frame Service and Repair

Brakes –* Air Brakes Diagnosis and Repair
* Hydraulic Brakes Diagnosis and Repair

Preventative Maintenance –* Engine System Preventative Maintenance Inspections
* Cab and Hood Preventative Maintenance Inspections
* Electrical/Electronics Preventative Maintenance Inspections
* Frame and Chassis Preventative Maintenance Inspections

**End of Course Assessment**Check the assessment instruments that will be used to document student attainment of the program knowledge and skills.[x]  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)      [x]  Nationally recognized examination: (specify) NA3SA end-of-course exam: Suspension & Steering, Brakes, Preventative Maintenance (Students are required to take the NA3SA end-of-course exams) |
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| **Course Title: Medium/Heavy Truck 2: Diesel Engines and Electrical/Electronic Systems (3 credits)****Course Description:** This course provides the student with the knowledge and skills necessary to pass the NATEF/ASE Medium/Heavy Truck Technician Exams for Diesel Engines and Electrical/Electronic Systems and immediately enter a career in this area and/or attend post-secondary education and/or training. Students develop diagnostic, technical, and academic skills through classroom instruction and hands-on maintenance applications in the above areas. Through theory and real-world experiences, students master the concepts and the ability to identify and perform necessary repair tasks utilizing the latest techniques and applications on Class 4 through Class 8 trucks and tractors.Students will understand and be able to perform: * 95% of all Priority 1 (P-1) items as identified by NATEF/ASE
* 70% of all Priority 2 (P-2) items as identified by NATEF/ASE
* 25% of all Priority 3 (P-3) items as identified by NATEF/ASE

Specifically, upon sucessful completion of this course, students will be able to: * Analyze and determine required and locally established safety precautions for the work to be performed;
* Evaluate and determine appropriate procedure, tools, and materials for proper diagnosis and repair;
* Operate pneumatic tools, compressor, lifts, hand tools, and related equipment necessary for the proper diagnosis and repair;
* Inspect, analyze and determine appropriate actions and repair procedures;
* Identify equipment maintenance requirements, determine causes and cures, and estimate the cost of repair; and
* Analyze and identify discrepancies and plan and execute all final repair related tasks for the following areas:

Diesel Engines – * General Engine Diagnosis
* Cylinder Head and Valve Train Diagnosis and Repair
* Engine Block Diagnosis and Repair
* Lubrication Systems Diagnosis and Repair
* Cooling System Dignosis and Repair
* Air Induction and Exhaust Systems Diagnosis and Repair
* Fuel System Diagnosis and Repair
* Engine Brake Inspection and Adjustment

Electrical/Electronic Systems –* General Electrical Systems Diagnosis
* Battery Diagnosis and Repair
* Starting System Diagnosis and Repair
* Charging System Diagnosis and Repair
* Lighting Systems Diagnosis and Repair
* Gauges and Warning Devices Diagnosis and Repair
* Related Electrical Systesms Diagnosis and Repair

**End-of-Course Assessment**Check the assessment instruments that will be used to document student attainment of the program knowledge and skills.[x]  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)      [x]  Nationally recognized examination: (specify) NA3SA end-of-course exam: Diesel Engines and Electrical/Electronic Systems (Students are required to take the NA3SA end-of-course exams)  |
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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)

[x]  Certification or credentialing exam: (specify)

[ ]  Nationally recognized examination: (specify) NA3SA end-of-course exams: Suspension & Steering, Brakes, Preventative Maintenance Diesel Engines, and Electrical/Electronic Systems

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**STEP 2D: Program Sequence matrix (Include High School, Associate’s Degree, and Bachelor’s Degree)**

Identify the pathway options. Complete the program matrix for the 9-12 program and 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 courses are not acceptable for credit in the career and technology education program sequence.

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| --- | --- | --- | --- |
| **Pathway/Program:** | **Transportation Equipment / Medium-Heavy Truck Technician** | **CIP Number**  | **47.0655** |
| **Graduation Requirements** | **Grade 9** | **Grade 10** | **Grade 11** | **Grade 12** |
| English - 4 | English 1 (1 credit) | English 2 (1 credit) | American Lit & Comp. (1 credit) | Senior English (1 credit) |
| Social Studies - 3 | US Government (1 credit) | US History (1 credit) | World History (1 credit) |  |
| Mathematics - 3  | Algebra 1 (1 credit) | Geometry (1 credit) | Algebra 2 (1 credit) |  |
| Science - 3 | Conceptual Physics (1 credit) orChemistry (1 credit) | Biology (1 credit) | Chemistry (1 credit) |  |
| Physical Education -.5Health Education - .5 | Health (.5 credit) | PE (.5 credit) |  |  |
| Fine Arts - 1 | Fine Arts (1 credit) |  |  |  |
| Technology Education - 1 |  | Foundations of Technology (1 credit)  |  |  |
| CTE Completer Program 6.0 credits |  |  | Medium/Heavy Truck I (3 credits)Which includes – Suspension and SteeringBrakesPreventative Maintenance | \*Medium/Heavy Truck II (3 credits)Which includes –Diesel EnginesElectrical/Electronic Systems(\*\*WBL) |
| Foreign Language - 2 and/orAdvanced Tech Ed – 2 | Spanish 1 (1 credit) | Spanish 2 (1 credit) |  |  |
| *\* Concentrator course –* The second course in the sequence is the concentrator course.\*\* Work-based Learning (WBL) is an integral component of the program. WBL should be incorporated into the program dependent upon LSS delivery system (i.e., integrated or capstone WBL experience).**Provide a list of examples of careers students are preparing to enter and postsecondary options:** * Careers: Diesel Service Technician, Diesel Mechanic, Bus and Truck Mechanics, Diesel Engine Specialists, Heavy Truck Technician Power generation technician, technical sales consultant, industrial maintenance, field service technician, sales representative, service manager.
* Postsecondary Options: Statewide Articulation Agreement with Penn College
 |

STEP 2E: VALUE-ADDED OPTIONS – Fill in the name of the partnering college, vendor, 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 | **Penn College,** **Williamsport, PA**  |  | * Heavy Duty Brake Systems
* Fuel Systems

(Please see attachments for specific Penn College program for credit details) |
| Credit by Exam |  |  |  |
| Advanced Placement |  |  |  |
| Apprenticeship Approved by MATC\*\* |  |  |  |
| Certification(s) | **National Automotive Technicians Education Foundation (NATEF)** | **Student recognition in all tested NATEF-NA3SA areas** | **Student industry recognized certification**  |
| License |  |  |  |
| Degree |  |  |  |
| Other (specify) |  |  |  |

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| --- |
| **Two Year College Program Sequence – Program Overview****See attachments for the specific program and credits awarded****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 required to be submitted with the proposal prior to program approval. (The Penn College Articulation Agreement is Attachment 1)*****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.** |
| **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** |
|

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| --- | --- | --- |
|  |  |  |
|  | **See attachments for the specific program and credits awarded** |  |
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| Semester 3 | Semester 4 |
| **Provide a list of examples of careers students are preparing to enter:** Diesel Service Technician, Diesel Mechanic, Bus and Truck Mechanics, Diesel Engine Specialists, Heavy Truck Technician Power generation technician, technical sales consultant, industrial maintenance, field service technician, sales representative, service manager.  |

**NOTE:** Penn College Articulation Agreement is Attachment 1

**STEP 2F: INDUSTRY- MENTORED PROJECT OR WORK-BASED LEARNING OPPORTUNITIES PROVIDED**

Check each box that applies.

PAC members and other industry partners provide supervised work-based learning experiences 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 2. [x]  Capstone 3. [x]  Registered Apprenticeship
4. [x]  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 [x]  SkillsUSA [ ]  FBLA [ ]  HOSA

[ ]  OTHER (specify)

STEP 3: INSTRUCTIONAL PROGRAM DATA SHEET – Complete the Program Data Sheet.

|  |  |
| --- | --- |
| Local School System (LSS) and Code: |  |
| Name of Local Director of CTE: |  | Phone: |  |
| LSS Program Title: | **Medium/Heavy Truck Technician** | CIP Code: | **47.0655** |

*STEP 3.1 - DATA SHEET: PATHWAY OPTIONS*

|  |  |
| --- | --- |
| **1.** | **Medium/Heavy Truck Technician** |
| **2.** |  |
| **3.** |  |
| **4.** |  |

*STEP 3.2 - DATA SHEET: INSTRUCTIONAL PROGRAM CREDIT BY GRADE(S)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Credits per year per pathway option as reflected by Course Sequences** | **9** | **10** | **11** | **12** | **TOTAL** |
|  **1. Medium/Heavy Truck Technician** |  |  | **3** | **\*3** | **6** |
| **2.** |  |  |  |  |  |
|  |  |  |  |  |  |
|  **4.** |  |  |  |  |  |

**Total number of credits for program completion: 6**

**\* Work-based Learning included in the terminal course of the sequence**

*STEP 3.3 - DATA SHEET: CAREER AND TECHNOLOGY EDUCATION PROGRAM SITES*

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

By receiving funds under this grant award, we hereby agree, as grantee, to comply with the following terms and conditions:

|  |  |
| --- | --- |
| 1. | Programs and projects funded in total or in part through this grant will operate in compliance with State and federal laws and regulations, including but not limited to the Department of Labor, 1964 Civil Rights Act and amendments, Title IX of the Education Amendments of 1972, the Code of Federal Regulations (CFR) 34, the Elementary and Secondary Education Act, Education Department General Administrative Regulations (EDGAR), the General Education Provisions Act (GEPA), the Maryland Education That Is Multicultural Regulation, Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. |
| 2. | The Maryland State Department of Education (MSDE) may, as it deems necessary, supervise, evaluate, and provide guidance and direction to grantee in the conduct of activities performed under this grant. However, failure of MSDE to supervise, evaluate, or provide guidance and direction shall not relieve grantee of any liability for failure to comply with the terms of the grant award. |
| 3. | Grantee shall establish and maintain fiscal control and fund accounting procedures as set forth in 34 CFR Parts 76 & 80 and in applicable State law and regulation. (For Career Connections grants, 29 CFR Part 97.) |
| 4. | Grantee shall adhere to the Maryland State Department of Education (MSDE) reporting requirements, including the submission of progress reports. (For Career Connections grants, OMB Circular A-102) |
| 5. | Entities receiving $300,000 or more of federal funds need to have an annual financial and compliance audit in accordance with OMB Circular A-133. |
| 6. | Grantee shall retain all records of its financial transactions and accounts relating to the grant for a period of three years, or longer if required by federal regulation, after termination of the grant agreement. Such records shall be made available for inspection and audit by authorized representatives of MSDE. |
| 7. | Grantee must receive prior written approval from the MSDE Program Monitor before implementing any programmatic changes with respect to the purposes for which the grant was awarded. |
| 8. | Grantee must receive prior written approval from the MSDE Program Monitor for any budgetary realignment of $1,000 or 15% of total object, program or category expenditure, *whichever is greater.* Grantee must support the request with reasons for change. Budget alignments must be submitted at least 45 days prior to the end of the grant period. |
| 9. | Requests for grant extensions, when allowed, must be submitted at least 45 days prior to the end of the grant period. |
| 10. | Grantee shall repay any funds which have been finally determined through federal or state audit resolution process to have been misspent, misapplied, or otherwise not properly accounted for, and further agrees to pay any collection fees that may subsequently be imposed by the federal and/or state government. |
| 11. | If the grantee fails to fulfill its obligations under the grant agreement properly and on time, or otherwise violates any provision of the grant, MSDE may suspend or terminate the grant by written notice to the grantee. The notice shall specify those acts or omissions relied upon as cause for suspension or termination. Grantee shall repay MSDE for any funds that have been determined through audit to have been misspent, unspent, misapplied, or otherwise not properly accounted for. The repayment may be made by an offset to funds that are otherwise due grantee. |

I further certify that all of the facts, figures, and representations made with respect to the grant application and grant award, including exhibits and attachments, are true and correct to the best of my knowledge, information, and belief.

|  |  |
| --- | --- |
|  |  |
| Superintendent of Schools/Head of Grantee Agency | Date |

Revised 7/97 (DCTAL)

**Attachment 2**

Pennsylvania College of Technology Associate of Applied Science Degree Program

**On-Site Power Generation (PW)**

**(There will be an attachment for each of the four programs included in the articulation agreement)
(Effective Fall 2013)
Associate of Applied Science Degree (A.A.S.)**

**Program Description:** Students develop the skills necessary to install, service, and maintain diesel and natural gas-powered generator sets in residential and commercial settings. This major emphasizes continuous-power, peaking-power, prime-power, and standby-power generating units. Advanced instruction is provided in the areas of electronically controlled diesel engines, gaseous-fueled engines, troubleshooting and repair of electric power generators, engine governors, and the electronic switching components necessary in the generation, transmission, and distribution of electric power. Students develop the practical skills needed to work with electrical machinery, electric and electronic machine control devices, and other electronic equipment. The students are exposed to all facets of the career field with a particular focus on problem solving and transferability of technical knowledge and skills.

**Career Opportunities:** Power generation technician, technical sales consultant, industrial maintenance, field service technician, sales representative, service manager.

**Recommended High School Subjects:** Liz to edit Four years of English; two years of algebra; two years of science.

**Remediation Strategies:** Liz to edit All students must remediate by the end of the first year. The order of remediation will be math, reading and English.

**Transfer Procedures:** This major is subject to the transfer standards established by the College (see the standards at this web page: <http://www.pct.edu/catalog/TransferringCredits.htm>). Exceptions must be approved by the school dean.

**Program Goals:** A graduate of this major should be able to:

* practice approved safety procedures in the work environment.
* read and interpret equipment manuals and write clear, accurate and complete service reports.
* demonstrate the correct use of basic tools, specialty tools and testing equipment.
* interpret schematics applicable to installation of power generation sets.
* use appropriate test equipment to determine correct operation of the power generation systems.
* explain the principles of electronic control systems and demonstrate the ability to detect and repair faults in electronic controls used in power generation systems.
* interpret manufacturer specifications and determine if a power generator system has been installed correctly.
* demonstrate the ability to supplement existing power systems with portable power generators.
* demonstrate the proper skills in adjusting gaseous-fueled engines to specifications.
* demonstrate the proper skills in adjusting diesel-fueled engines to specifications.

# Curriculum: On-Site Power Generation (PW)

|  |  |
| --- | --- |
| **First Semester** | **Credits** |
| [FYE101](http://www.pct.edu/catalog/courses/fye101.shtml) | First Year Experience  | 1 |
| [ELT111](http://www.pct.edu/catalog/courses/elt111.shtml) | Direct Current Fundamentals  | 5 |
| [ELT113](http://www.pct.edu/catalog/courses/elt113.shtml) | Accident Prevention  | 2 |
| [CSC124](http://www.pct.edu/catalog/courses/csc124.shtml) | Information, Technology, and Society  | 3 |
| [ENL111](http://www.pct.edu/catalog/courses/enl111.shtml) | English Composition I  | 3 |
| [MTH180](http://www.pct.edu/catalog/courses/mth180.shtml) | College Algebra and Trigonometry I  | 3 |
|  | TOTAL CREDITS | 17  |
| **Second Semester** | **Credits** |
| [DSM119](http://www.pct.edu/catalog/courses/dsm119.shtml) | Fuel Systems  | 2 |
| [DSM154](http://www.pct.edu/catalog/courses/dsm154.shtml) | Diesel Engine Technology  | 5 |
| [DSM116](http://www.pct.edu/catalog/courses/dsm116.shtml) | Diesel Engines Laboratory  | 4 |
| [ELT122](http://www.pct.edu/catalog/courses/elt122.shtml) | Alternating Current Fundamentals  | 5 |
|  | TOTAL CREDITS | 16  |
| **Summer Session** | **Credits** |
| [DSM152](http://www.pct.edu/catalog/courses/dsm152.shtml) | Electric Power Generation Internship  | 2 |
|  | TOTAL CREDITS | 2  |
| **Third Semester** | **Credits** |
| [DSM279](http://www.pct.edu/catalog/courses/dsm279.shtml) | Gaseous Fueled Engines Operation, Applications, and Troubleshooting  | 2 |
| [DSM289](http://www.pct.edu/catalog/courses/dsm289.shtml) | Diesel Electronic Fuels: Systems, Operation and Diagnostics  | 5 |
| [ELT234](http://www.pct.edu/catalog/courses/elt234.shtml) | Electrical Motor Control  | 4 |
| [ELT229](http://www.pct.edu/catalog/courses/elt229.shtml) | Process Control Basics  | 3 |
| [PHS114](http://www.pct.edu/catalog/courses/phs114.shtml) | Physics with Technological Applications  | 4 |
|  | TOTAL CREDITS | 18  |
| **Fourth Semester** | **Credits** |
| [ELT245](http://www.pct.edu/catalog/courses/elt245.shtml) | Introduction to Programmable Logic Control  | 4 |
| [ELT248](http://www.pct.edu/catalog/courses/elt248.shtml) | Electrical Systems Analysis  | 3 |
| [ELT265](http://www.pct.edu/catalog/courses/elt265.shtml) | Power Generation System Controls  | 3 |
| [ENL201](http://www.pct.edu/catalog/courses/enl201.shtml) | Technical and Professional Communication  | 3 |
| [FIT111](http://www.pct.edu/catalog/courses/fit111.shtml) | Cardiopulmonary Resuscitation (CPR)  | 1 |
| [HUM](http://www.pct.edu/catalog/courses/humelc.shtml) | Humanities Elective  | 3 |
| or |
| [SSE](http://www.pct.edu/catalog/courses/sseelc.shtml) | Social Science Elective  | 3 |
| or |
| [ART](http://www.pct.edu/catalog/courses/artelc.shtml) | Art Elective  | 3 |
| or |
| [FOR](http://www.pct.edu/catalog/courses/forelc.shtml) | Foreign Language Elective  | 3 |
| or |
| [AAE](http://www.pct.edu/catalog/courses/aaeelc.shtml) | Applied Arts Elective  | 3 |
| or |
| [IFE](http://www.pct.edu/catalog/courses/ifeelc.shtml) | International Field Experience Elective  | 3 |
|  | TOTAL CREDITS | 17 |

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