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State Superintendent of Schools

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TO: Local Directors of Career and Technology Education

FROM: Katharine M. Oliver
Assistant State Superintendent
Career and College Readiness

SUBJECT: Articulation Agreement with Pennsylvania College of Technology
Medium/Heavy Truck Technician (NATEF) CIP 47.0655

DATE: April 25, 2013

I am pleased to announce that the Maryland State Department of Education (MSDE) has entered into a statewide articulation agreement with the Pennsylvania College of Technology (Penn College) for the Maryland Career and Technology Education Programs of Study: **Medium/Heavy Truck, National Automotive Technicians Education Foundation (NATEF) CIP 47.0655**. Attached is a copy of the agreement which gives students the opportunity to earn up to four credits towards the following Associate of Applied Science Degrees:

- Diesel Technology (DD)
- Heavy Construction Equipment Technology: Caterpillar Equipment Emphasis (CH)
- Heavy construction Equipment Technology: Technician Emphasis (HE), and
- On-site Power Generation (PW)

Please note: if the school system has an individual articulation agreement with Penn College for the Medium/Heavy Truck Technician (NATEF) CIP 47.0655 Maryland Program of Study, this statewide agreement will replace it. If the school system has an articulation agreement in place for any other Medium/Heavy Truck Technician program, the individual agreement will remain in effect. However it is the goal of MSDE to have all NATEF certified Medium/Heavy Truck Technician Programs adopt the Maryland Program of Study CIP 47.0655.

This is a wonderful opportunity for students in the Medium/Heavy Truck Technician (NATEF) CIP 47.0655 program to gain advanced standing in a challenging postsecondary program. The table on page two details the number of credits that may be earned.

Completion of Maryland Program of Study	Enrollment in Penn College Program	Penn College Articulated Courses	No. of Credits Earned
Medium/Heavy Truck Technician CIP 47.0655	<ul style="list-style-type: none"> • Diesel Technology (DD) • Heavy Construction Equipment Technology: Caterpillar Equipment Emphasis (CH) • Heavy construction Equipment Technology: Technician Emphasis (HE) 	<ul style="list-style-type: none"> • DSM 119 - Fuel systems and • DSM 141 - Heavy Duty Break Systems 	<ul style="list-style-type: none"> • 2 credits • 2 credits
Medium/Heavy Truck Technician CIP 47.0655	<ul style="list-style-type: none"> • On-site Power Generation (PW) 	<ul style="list-style-type: none"> • DSM 119 - Fuel systems 	<ul style="list-style-type: none"> • 2 credits

Please review the articulation agreement and note the responsibilities of all parties involved, including the Maryland local school system, the student, the Maryland State Department of Education, and Penn College. Questions about the articulation agreement and/or the CTE programs of study may be directed to the Transportation Technologies Cluster Team: Kathy McNerney, Cluster Lead at 410-767-0185, or via e-mail at kmcnerney@msde.state.md.us, Mike Beck, CTE Program Analyst at mbeck@msde.state.md.us or 410-767-0180, Nancy Hauswald, CTE Regional Coordinator at nhauswald@msde.state.md.us or 410-767-0175.

Attachments

KMO:KM:dw

c: Colin Williamson
 Elizabeth Biddle
 CTE Staff



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**STATEWIDE ARTICULATION AGREEMENT
BETWEEN
PENNSYLVANIA COLLEGE OF TECHNOLOGY
AND THE
MARYLAND STATE DEPARTMENT OF EDUCATION
ON BEHALF OF LOCAL SCHOOL SYSTEMS**

This articulation agreement can be used for students enrolling in the following Associate of Applied Science Degree programs at Pennsylvania College of Technology (Penn College):

- Diesel Technology (DD),
- Heavy Construction Equipment Technology: Caterpillar Equipment Emphasis (CH),
- Heavy Construction Equipment Technology: Technician Emphasis (HE), and
- On-Site Power Generation (PW)

Maryland State Department of Education (MSDE) and Pennsylvania College of Technology (Penn College) enter into this articulation agreement in order to facilitate the enrollment of students from the Maryland Career and Technology Education (CTE) Program of Study in **Medium/Heavy Truck Technician** /National Automotive Technicians Education Foundation (NATEF), CIP 47.0655 into the above named Associate of Applied Science Degree programs at Penn College. Both parties agree to annually review the document and update as appropriate.

Subject to terms of this agreement, a student who successfully completes the approved Maryland CTE Program of Study in Medium/Heavy Truck Technician /NATEF, CIP 47.0655: Medium/Heavy Truck 1 and Medium/Heavy Truck 2 and is accepted into either the Diesel Technology (DD), Heavy Construction Equipment Technology: Caterpillar Equipment Emphasis (CH), or Heavy Construction Equipment Technology: Technician Emphasis (HE) programs at Penn College will be granted advanced credit at Penn College for the following courses:

•	DSM 119	Fuel Systems	2 credits
•	DSM 141	Heavy Duty Break Systems	2 credits
Total Credits			4 credits

A student who successfully completes the approved Maryland CTE Program of Study in Medium/Heavy Truck Technician /NATEF, CIP 47.0655: Medium/Heavy Truck 1 and Medium/Heavy Truck 2 and is accepted into the On-Site Power Generation (PW) will be granted advanced credit at Penn College for the following courses:

•	DSM 119	Fuel Systems	2 credits
Total Credits			2 credits

Note: All programs eligible to participate in the Articulation Agreement must be currently NATEF accredited.

The terms of this agreement are as follows:

Maryland Local Schools Systems will:

- Offer the Maryland Career and Technology Education (CTE) Program of Study in Medium/Heavy Truck Technician/ NATEF, CIP 47.0655, as stated in the Maryland CTE program proposal as attached; and
- Communicate details of this agreement to principals, teaching staff, guidance personnel, students and parents and/or guardians.

Full or partial articulated credit will be awarded based on the following when students:

- Complete the entire Maryland CTE Medium/Heavy Truck Technician /NATEF Program of Study by taking all required courses: Medium/Heavy Truck 1 and Medium/Heavy Truck 2;
- Sit for and pass the National Automotive Student Skills Standards Assessment (NA3SA) end-of-course exams; (Medium/Heavy Truck 1 and Medium/Heavy Truck 2). Articulation credit will only be awarded for the exams passed;
- Receive a Maryland high school diploma;
- Provide a copy of their official NATEF/NA3SA student certification to Penn College prior to July 1 of the academic year;
- Meet the admission dates, procedures that apply to all new students at the Pennsylvania College of Technology, and current college policies on Advanced Credit; and
- Apply to Penn College within three years of high school graduation.

Pennsylvania College of Technology will:

- Arrange meetings, as requested, with faculty and students on the Maryland NATEF Program school campuses to provide information and assistance in matriculating at Penn College;
- Supply MSDE and local school systems with promotional literature that will be used to assist students with the application and/or transfer process;
- Communicate details of this agreement to staff in admissions, academic affairs, and faculty;
- Award the appropriate number of academic and/or technical credits, as specified in this agreement, upon review of the student's transcript and completion of the application process;
- Notify student of credits awarded;
- Provide a list of student credits awarded to MSDE each spring; and
- Notify student's teacher and copy the CTE Director, based upon student's self-identification, to verify the program is NATEF certified and request recommendation.

Maryland State Department of Education will:

- Communicate details of this agreement with local school systems via CTE Directors;
- Confirm programs participating in the articulation agreement are currently NATEF certified;
- Provide Penn College with a list of centers (and their feeder schools) offering approved Maryland CTE Programs of Study in Medium/Heavy Truck Technician /NATEF, CIP 47.0655 annually; and
- Provide Penn College with a list of CTE Directors annually.

Pennsylvania College of Technology
Diesel Technology (DD)
Associate of Applied Science Degree

Semester 1			Semester 2		
FYE 101	First Year Experience	1	FIT	Fitness and Lifetime Sports Elective	1
DSM 154	Diesel Engine Technology	5	DSM 117	Introduction to Hydraulics	1
DSM 116	Diesel Engines Laboratory	4	DSM 120	Basic Electricity	4
DSM 119	Fuel Systems	(2)	DSM 140	Truck Tractor Chassis and Alignment	3
CSC 124	Information, Technology, and Society	3	DSM 141	Heavy Duty Brake Systems	(2)
MTH 124	Technical Algebra and Trigonometry		DSM 142	Power Train and Brake Systems Lab	4
or			DSM 146	Commercial Truck Power Train and State Inspection	3
MTH 180	College Algebra and Trigonometry	3			
Semester 3			Semester 4		
DSM 289	Diesel Electronic Fuels: Systems, Operations & Diagnostics	5	DSM 258	Vehicle Electronics/Diagnostic Procedures	3
DSM 242	Diesel Equipment Air Conditioning Systems	2	DSM 268	Truck and Trailer Refrigeration Systems	4
DSM 245	Allison Transmissions	3	DSM 278	Automated and Hybrid Drive Systems	2
ENL 111	English Composition I	3	ENL 201	Technical & Professional Communications	3
PHS 103	Physics Survey	3	WEL 100	Introduction to Welding Processes	3
or			ELECTIVE	Humanities/Social Science/Art/Foreign Language/Applied Arts/International Field Experience Elective	3
PHS 114	Physics with Technology Application	4			

Pennsylvania College of Technology
Heavy Construction Equipment Technology: Technician Emphasis (HE)
Associate of Applied Science Degree

Semester 1			Semester 2		
FYE 101	First Year Experience	1	DSM 154	Diesel Engine Technology	5
DSM 141	Heavy Duty Brake Systems	(2)	DSM 116	Diesel Engines Laboratory	4
DSM 155	Power Train & Brake Systems Lab	4	DSM 119	Fuel Systems	(2)
DSM 160	Fundamentals of Powertrain Technology	4	DSM 120	Basic Electricity	4
DSM 248	Introduction to CAT Vehicles	1	DSM 121	Hydraulics I	3
CSC 124	Information, Technology, and Society	3	HEO 153	Internship (Summer)	2
MTH 124	Technical Algebra and Trigonometry				
or					
MTH 180	College Algebra and Trigonometry	3			
Semester 3			Semester 4		
DSM 122	Hydraulics II	4	DSM 230	Hydraulics III	6
DSM 287	Heavy Equipment Vehicle Laboratory	1	DSM 242	Diesel Equipment Air Conditioning Systems	2
WEL 100	Introduction to Welding Processes	3	DSM 277	Heavy Equipment Electronic Systems	3
ENL 111	English Composition I	3	ENL 201	Technical & Professional Communications	3
PHS 103	Physics Survey	3	ELECTIVE	Humanities/Social Science/Art/Foreign Language	3
or					
PHS 114	Physics with Technology Application	4			
FIT 204	First Aid, Responding to Emergencies	2			

**The following three pages detail the Penn College Associate of Applied Science
Program Articulated Credit Map**

Medium/Heavy Truck High School Program of Study				
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	
Mathematics – 4	Algebra 1	Geometry	Algebra 2	
Science – 3	Physical Science	Biology	Chemistry	
Physical Education - .5 Health Education - .5	.5 PE	.5 Health		
Fine Arts – 1	.5 Fine Arts	.5 Fine Arts		
Technology Education – 1	Foundations of Technology			
CTE Completer Program – 5 * Concentrator course ** Work Base Learning			Medium/Heavy Truck 1 (3 credits) Which includes – • Suspension and Steering • Brakes • Preventative Maintenance	Medium/Heavy Truck 2 (3 credits) Which includes – • Diesel Engines • Electrical/Electro nic Systems (**WBL)
Foreign Language – 2 and/or Advanced Tech Ed – 2	Foreign Language I	Foreign Language II or →	Advanced Technology Education	Advanced Technology Education

Maryland State Department of Education
Program of Study
Medium/Heavy Truck Technician Course Descriptions

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 730 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 ASE 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. Curriculums aligned to the NATEF standards.

Secondary Courses

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 Maintenance 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.

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.

Pennsylvania College of Technology
Heavy Construction Equipment Technology: Caterpillar Equipment Emphasis (CH)
Associate of Applied Science Degree

Semester 1		Semester 2	
FYE 101	First Year Experience	1	
DSM 141	Heavy Duty Brake Systems	(2)	
DSM 155	Power Train & Brake Systems Lab	4	DSM 154 Diesel Engine Technology
DSM 160	Fundamentals of Powertrain Technology	4	DSM 116 Diesel Engines Laboratory
DSM 248	Introduction to CAT Vehicles	1	DSM 120 Basic Electricity
CSC 124	Information, Technology, and Society	3	DSM 121 Hydraulics I
MTH 124	Technical Algebra and Trigonometry		DSM 119 Fuel Systems
or			(2)
MTH 180	College Algebra and Trigonometry	3	DSM 153
			Or
			HEO153 Internship (Summer)
			2
Semester 3		Semester 4	
DSM 122	Hydraulics II	4	DSM 230 Hydraulics III
DSM 242	Diesel Equipment Air Conditioning Systems	2	DSM 288 Caterpillar Electronic Engine Management Systems
DSM 286	CAT Vehicle Machine Electronics & Diagnostic Procedures	3	
DSM 285	CAT Vehicles Laboratory	1	Technical & Professional Communications
PHS 103	Physics Survey	3	ENL 201
or			ELECTIVE
PHS 114	Physics with Technology Application	4	Humanities/Social Science/Art/Foreign Language/Applied Arts/International Field Experience Elective
ENL 111	English Composition I	3	
FIT204	First Aid, Responding to Emergencies	2	WEL 100 Introduction to Welding Processes
			3

Pennsylvania College of Technology
On-Site Power Generation (PW)
Associate of Applied Science Degree

Semester 1		Semester 2	
FYE 101	First Year Experience	1	
ELT 111	Direct Current Fundamentals	5	DSM 119 Fuel Systems
ELT 113	Accident Prevention	2	(2)
CSC 124	Information, Technology, and Society	3	DSM 154 Diesel Engine Technology
ENL 111	English Composition I	3	DSM 116 Diesel Engines Laboratory
MTH 180	College Algebra and Trigonometry	3	ELT 122 Alternating Current Fundamentals
			DSM 152 Electric Power Generation Internship (summer)
			2
Semester 3		Semester 4	
DSM 279	Gaseous Fueled Engines Operation, Applications and Troubleshooting	2	ELT 245 Introduction to Programmable Logic Control
DSM 289	Diesel Electronic Fuels: Systems, Operations & Diagnostics	5	ELT 248 Electrical Systems Analysis
ELT 234	Electrical Motor Controls	4	ELT 265 Power Generation Systems Controls
ELT 229	Process Control Basics	3	ENL 201 Technical & Professional Communications
PHS 114	Physics with Technology Application	4	FIT 111 Cardiopulmonary Resuscitation (CPR)
			ELECTIVE
			Humanities/Social Science/Art/Foreign Language/Applied Arts/International Field Experience Elective
			3

**ARTICULATION AGREEMENT
PENNSYLVANIA COLLEGE OF TECHNOLOGY
AND
THE MARYLAND STATE DEPARTMENT OF EDUCATION
ON BEHALF OF LOCAL SCHOOL SYSTEMS**

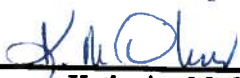
This agreement is for the following Penn College programs:

- Diesel Technology (DD),
- Heavy Construction Equipment Technology: Caterpillar Equipment Emphasis (CH),
- Heavy Construction Equipment Technology: Technician Emphasis (HE), and
- On-Site Power Generation (PW)

The undersigned agree to uphold all requirements of this agreement, including an annual review with appropriate updates. For just cause, either party can terminate the agreement given ninety days written notice. If the agreement is terminated, all student credits previously awarded will remain unaffected.

For Maryland State Department of Education:

For Pennsylvania College of Technology:



Katherine M. Oliver,
Assistant State Superintendent of Schools
Division of Career and College Readiness
Maryland State Department of Education



Davie Jane Gilmour, Ph.D.
President
Pennsylvania College of Technology

4/24/13

Date

3/25/13

Date

APPROVED FOR FORM AND LEGAL
SUFFICIENCY



Assistant Attorney General
Maryland State Department of Education
Date