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## **The Motorcycle, Marine and Small Engine Program**

**CIP 47.0699**

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Have Questions?

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# **READING MUHLENBERG CAREER & TECHNOLOGY CENTER**

## **MISSION STATEMENT**

The Reading Muhlenberg Career & Technology Center, in partnership with our diverse community, sponsoring districts, and business and industry, is committed to providing quality career and technical education, resulting in opportunities for students to gain employment, pursue post-secondary education, and develop an appreciation for lifelong learning.

## **VISION STATEMENT**

To empower Reading Muhlenberg Career & Technology Center students with the technical knowledge and skills to confidently pursue a career.

## **BELIEFS**

- We believe in valuing the diversity of each student
- We believe education leads to opportunity
- We believe quality education starts with quality leadership
- We believe a career and technical education is a critical component of workforce development
- We believe technology is vital to learning and will help students connect with a rapidly changing world
- We believe technology must be embraced by teachers as a tool to help prepare students to meet current and future labor market demands
- We believe in providing all students with a positive educational experience
- We believe students should feel proud of what they have accomplished each day
- We believe students will be provided the opportunity to achieve their highest potential
- We believe students will be provided the opportunity to acquire and cultivate leadership skills
- We believe in providing students with a safe school environment
- We believe the success of a student is enhanced by parents and/or other influential adults through their support and involvement
- We believe in encouraging students to maintain a lifelong affiliation with the school
- We believe change is an ongoing process, not an event, and is fundamental for building quality programs of study
- We believe instruction must accommodate individual student learning styles

Dear Parent/Guardian:

My name is Paul Miller, instructor for Motorcycle, Marine and Small Engine (MME) at Reading Muhlenberg Career and Technology Center (RMCTC). I would like to welcome your son/daughter to the MME program. It is my duty to instill the work ethics and professional skills needed to excel in the small engine repair field.

In our shop, as well as in industry, your child will learn that safety is the #1 issue. They should come to school with the desire to learn and know that there are many opportunities to gain knowledge, as well as experience, which will help your child be better prepared for gainful employment upon graduation.

Please note, that for your convenience I have enclosed both a safety agreement and a uniform dress code that we have implemented in the MME shop. Please have your child, and yourself, sign and return both forms within one week of receiving the forms.

Sincerely,

Paul E. Miller  
Motorcycle, Marine & Small Engine Instructor



# Motorcycle, Marine, & Small Engine Technology

- Acquire the skills necessary to obtain knowledge and hands-on experience to work on today's sophisticated vehicles.
- Receive training in order to obtain your PA State Inspection certifications.
- Apply the skills learned to perform factory maintenance and repair of factory machinery.
- Develop and apply the skills needed to perform repairs on equipment from lawn care machines to small diesel engines



### Job Titles – Career Pathways

- 41-2022 Parts Salespersons
- 49-3051 Motorboat Mechanics
- 49-3052 Motorcycle Mechanics
- 49-3053 Outdoor Power Equipment and Other Small Engine Mechanics
- 49-3090 Miscellaneous Vehicle and Mobile Equipment Mechanics, Installers, and Repairers
- 49-9042 Maintenance and Repair Workers, General

**CTC knowledge transfers to college credits at:**  
 Commonwealth Technical Institute  
 Pennsylvania College of Technology

### Student Certifications

- NOCTI – National Occupational Competency Testing Institute Certification
- \* Small Engine Technology
- Pennsylvania State Certified Emissions Inspector
- Pennsylvania State Certified Safety Inspector, Cat I
- Pennsylvania State Certified Safety Inspector, Cat II
- Pennsylvania State Certified Safety Inspector, Cat III
- Outdoor Power Equipment Technician Certification S/P2



### Accreditations

EETC – Equipment Engine & Training Council



## **Instructor – Mr. Paul E. Miller**

### **Biography**

My entire career revolves around the maintenance and repair of all types of motorized vehicles. Upon graduation from high school, I attended and earned my certification in auto and diesel repair technology. After working as a lead diesel mechanic for 13 years, I operated my own repair station for five years. My work experience includes factory machine maintenance, diesel- and gas-powered equipment, as well as boats and motorcycles. I currently hold a Voc Ed II degree for technical education from Temple University.

### **Education**

Degree in diesel technology from MTA School  
Safety Inspector Instructor  
State Emission Instructor

### **Certifications and Awards**

Two-stroke engine and four-stroke engine certifications from EETC  
Certified Inspection Mechanic for motorcycles, cars, and trucks  
Certified PA Emission Inspector

### **Work Experience**

Diesel and motorcycle mechanic for more than 20 years.

### **Hire Date**

2007



## Program Planning Tool

Program Title: **CIP 47.0699 MOTORCYCLE, MARINE & SMALL ENGINE TECHNOLOGY**

Student Name: \_\_\_\_\_

This document has been designed as a tool to facilitate student placement decisions and provides important information about the program. The chart on the reverse side is designed to assist in the identification of necessary skills, present educational levels, and supports, if any, that are needed to foster program success.

### ***Program Completion Requirements***

#### ***A successful student will...***

- Secondary Academic Course Requirements: The PA Dept. of Education's focus is to ensure every student is college and career ready, therefore all students are recommended to follow a college prep sequence of academic classes. Courses such as applied math or general science are not appropriate for this program. PDE's goal is to have all students perform at the competent or advanced level on the Keystone Exams and Program of Study end-of-program assessment (NOCTI).
- Complete an Occupational Competency Assessment (i.e. NOCTI end-of -program exam) and score at the "competent" or "advanced" level. This end-of -program exam will cover the full scope of the program of study curriculum and includes (1) multiple choice test (2) performance test consisting of occupational related tasks scored & evaluated by industry judges.
- Earn a minimum of one industry recognized certification. Students will be encouraged and expected to earn all recognized industry certifications that make up the scope of the curriculum. Accommodations are not permitted for industry certifications. These include: PA State Motorcycle Safety Inspection certification, Outdoor Power Equipment Technician Certification, and S/P2.
- Complete the approved program curriculum and earn a minimum of one RMCTC Job Title aligned with the student's career objective. Job titles are identified on the program task list, aligned with local workforce needs and high priority employment occupations, and annually reviewed and approved by the program's occupational advisory committee.
- Successful completion of Keystone Exams as determined by sending school district.
- Maintain a 95% attendance rate or better.
- Transition on to a post-secondary institution, military or related fulltime employment aligned to their CTC program of study.

### ***Instructional Process/Specifications***

#### ***A successful student will...***

- Perform a wide variety of tasks in a laboratory environment with equipment consistent with industry standards. Up to 25 students are assigned to work "independently" and in "small teams". Students progress through using learning guides in a self-directed manner. Working in the laboratory, students will be required to use hand tools, power tools, measuring instruments, hydraulic lifts, welding equipment, chemicals, heavy equipment, and cutting tools.
- Students will be required to properly handle and dispose of hazardous waste materials. The laboratory simulates a real working environment therefore students will be exposed to the noise levels, dust, debris, and fumes associated with the profession. Students must be alert and aware of the surroundings at all times as equipment moves in and out of the laboratory. This requires self-discipline and strict adherence to rules to ensure safety of self and others.
- Participate in classroom theory and laboratory applications for generally 2 ½ hours each day; students will spend 40% of their time in classroom theory and 60% of their time doing laboratory applications and live work.
- Complete written and performance tests. Students will be evaluated weekly on occupational skill performance using rubrics. In addition, students will be evaluated daily on work ethics. Progress is measured by test performance, task completion and work ethic.
- Participate in Career & Technical Student Organizations including SkillsUSA and/or National Technical Honor Society.
- Participate in a paid or unpaid work based learning related to the Program of Study (cooperative education, clinical internship, and/or job shadowing).
- Read and study textbooks and technical manuals. Most textbooks are written at a 10th to 11th grade reading level and most technical manuals are written at a higher level and are accessed on line.
- Complete homework on time. Homework typically involves chapter or workbook assignments, on line research assignments and writing assignments.
- Purchase appropriate work and safety attire, tools, and equipment. Following is an estimated breakdown of costs: UNIFORM: \$100

## Program Planning Tool

CTE Requirements	Present Educational Ability/Level	Support Needs
<p><b>Program Completion</b> – Strong self-determination skills and understanding of personal strengths and weaknesses. Ability to meet industry established standards of performance, complete the program of study without curriculum modifications, and earn industry certifications without testing accommodations.</p>		
<p><b>Reading and Language Arts Level</b>- Text and manuals written on a 10<sup>th</sup> – 11<sup>th</sup> grade reading level. Proficient on end-of-course exam (Keystone). Must have ability to read and comprehend technical content, service manuals and interpret schematics. NOCTI assessment and industry certification exams require a proficiency in English language skills.</p>		
<p><b>Math Level</b> - At grade level and proficient on end-of-course exam (Keystone). Knowledge of arithmetic, algebra, geometry and their applications. Must have ability to apply weights and measures, metric system, fractions, decimals and percentages. Ability also needed to estimate and measure sizes, distances, and quantities; and determine time, costs, resources, and materials needed to perform a work activity.</p>		
<p><b>Aptitude</b> – Problem solving/diagnostic skills; aptitude for mechanical, electrical, electronic, computer technology, technical drawings and diagrams. Oral comprehension and expression, active listening, analytical thinking, attention to detail, deductive and inductive reasoning.</p>		
<p><b>Safety &amp; Physical</b> - Manual dexterity; fine motor skills; hand-eye-body coordination; frequent standing bending and lifting required. Multi-limb coordination, arm-hand steadiness, and extent flexibility (the ability to bend, stretch, twist or reach with body, arms and/or legs). Trunk strength and ability to lift 50 lbs. High degree of self-discipline and focus needed for safety around moving equipment, hand tools, power tools and other equipment found in the industry.</p>		
<p><b>Interpersonal/ Social</b> - Ability to relate well to customers and coworkers; ability to work independently and as a team member; self-discipline a must due to safety issues; listening to what people are saying and understanding the points being made.</p>		
<p><b>Other Occupational/Program Considerations</b> - Ability to work independently and read and follow directions. Stamina needed to stand for long periods of time. Good attention to detail. Environment with several sensory inputs, dust and fumes, loud and sometime startling noises, ongoing background noise, moving people and vehicles.</p>		

# Scope and Sequence Motorcycle, Marine & Small Engine Tech 47.0699



Academic Subjects – Career success and postsecondary education success require the same level of college prep coursework. The Pennsylvania Department of Education’s (PDE) focus is to ensure that every student is prepared for college and a career. Academic courses such as applied math or general science cannot be listed on the program’s scope and sequence. PDE’s goal is to have all students perform at the competent or advanced level on the PSSA, and earn the Pennsylvania Skills Certificate on the end-of-program assessment.

Subject (Hours)	Secondary School				Postsecondary Institution			
	Grade 9 (Hours)	Grade 10 (Hours)	Grade 11 (Hours)	Grade 12 (Hours)	First Semester	Second Semester	Third Semester	Fourth Semester
Technical		Engine Operations and Safety	Welding	Drive Trains	AMT 111: Manual Transmission & Transaxle Principle	AMT 122: Engine Principles	AMT 235: Engine Service	AMT 241: Automotive Chassis Service
		Basic Hand Tools	Diagnose Problems in 2 and 4 Stroke Engines	Certification Prep-OPE	AMT 112: Brake Systems	AMT 123: Basic Fuel & Emission Control Systems	AMT 239: Engine Repair & Overhaul	AMT 242: Vehicle Safety Inspection
		Manuals, Ordering & Record Keeping	Engine Overhaul & Service	Principles of Electrical Systems	AMT 113: Steering and Suspension	AMT 124: Automotive Electrical/Electronic Principle	AMT 263: Electronic Power train Systems Service	AMT 274: Automotive Air Conditioning Systems & Ser
		Principles and Design of 2 & 4 Stroke Engine	Measuring and Math	Failure Analysis	AMT 119: Fundamentals of Automatic Transmissions	AMT 126: Engine Electrical Systems		AMT 276: Electrical/Electronic Accessory Service
		Lubrication Systems	Transmissions	Job Seeking/Keeping Skills				
		4 Stroke Engine Design and Components	Lubrication Systems					
		Cooling Systems	Job Seeking/Keeping Skills					
		Fuel Systems	Brake Systems					
English	College Prep English 9	College Prep English 10	College Prep English 11	College Prep English 12		ENL 111: English Comp I	ENL 201: Technical & Professional Communication	
Math	Algebra I	Geometry	Algebra II	Trigonometry	MTH 124: Technical Algebra & Trig I			
					MTH 180: College Algebra and Trig I			
Science	Accl Integrated Science	Biology	Chemistry					PHS 103: Physics Survey
								PHS 114: Physics w/Technological Applications
Humanities	Citizenship	World Cultures	American History I	American Government			_HUM:Elective:HUM/SSE/ART/FOUR/AEE	
Other	Physical Education	Physical Education	Physical Education	Physical Education		FIT:Elective: Fitness		
	Health	Health	Driver's Ed Theory					



# 47.0699 Vehicle Maintenance and Repair Technologies, Other

## **WORKPLACE SAFETY**

Interpret SDS Sheets.

Lift and move heavy objects.

Handle and store flammable materials and toxic substances.

Follow OSHA rules and regulations.

Identify job-site hazards.

Wear personal protective equipment (safety goggles hearing protection and respiratory protection).

Select appropriate fire extinguisher according to fire type.

Follow safety rules for ECP (Exposure Control Procedures) for blood borne pathogens.

Use safe work habits while working with electrical systems.

## **BASIC ELECTRICAL PRINCIPLES AND CIRCUIT TESTING**

Interpret electrical circuit and wiring diagrams.

Use a meter to measure resistance continuity amperage and voltage.

Solve problems using Ohm's Law.

Follow proper procedure for battery disposal.

Construct and test series and parallel circuits.

Identify electrical terminals and connectors.

Perform a diode test.

Inspect test and replace fusible links fuses and circuit breakers.

Identify American Wire Gauge (AWG) wiring codes.

Solder a current carrying wire.

## **COOLING SYSTEMS**

Explain the concept of heat transfer and the purpose of a cooling system.

Perform a cooling system flush on a liquid cooled engine.

Remove service and replace a water pump hoses and thermostat.

Identify and describe the components of a liquid cooled engine.

Pressure-test a liquid-cooled cooling system.

Identify causes of engine overheating.

Inspect the cooling system for debris leaks and damage.

## **FUEL SYSTEMS**

Identify the types of fuel systems and explain the function of each component.

Identify types of carburetor designs and their functions.

Describe the operation of the idle fuel circuit and the main fuel circuit.

Explain the venturi principle and variable venturi carburetors.

Describe fuel enrichment devices.

Identify the function of electronic fuel injection (EFI) components.

Identify the function and components of gaseous fuel systems.

Identify types and grades of fuels used in internal combustion engines.

Describe how fuel additives protect fuel systems.

Remove service and replace carburetor.

Remove service and replace a fuel system's air filter and air intake assembly.

Remove service and replace a fuel pump.

Install and adjust throttle and choke linkage.

Adjust carburetor mixture screws per OEM specifications.

Adjust carburetor float level and metering levers.

Remove service and replace a fuel tank filters caps and lines.

Check the fuel pump pressure and flow rate.

Pressure test the carburetor.

Check the engine for proper starting idle and acceleration.

Remove and replace an intake manifold.

Remove service and replace EFI fuel system components.

Diagnose EFI system failures.

Test and replace an antibackfire/fuel shutoff solenoid.

## **EXHAUST SYSTEMS**

Identify equipment problems that can occur from operating equipment with a removed or damaged exhaust system.

Remove service and replace a spark arrestor screen.

Identify exhaust system components and their functions.

Explain the function of a single stage catalyst (catalytic converters).

Remove service and replace an exhaust system.

## **MEASURING AND TRADE RELATED MATHEMATICS**

Read a standard and a metric ruler

Read and use a standard and metric micrometer

Read and use a standard and metric dial indicator

Use a standard and metric torque wrench.

Use a standard/metric dial caliper.

Calculate displacement and horse power.

Calculate work power torque area and volume.

## **HAND AND POWER TOOLS**

Use common hand tools used in the repair of outdoor power equipment.

Use specialty tools used in the repair of outdoor power equipment.

Use electric air and hydraulic tools.

## **FASTENERS**

Identify select and install various fasteners according to specifications.

Replace damaged internal threads using a thread repair system.

Repair damaged threads using a tap and die chaser or a thread file.

Use a thread extraction tool to remove a broken fastener.

Torque fasteners according to manufacturer s specifications.

## **WELDING HEATING AND CUTTING**

Follow safety rules for welding and cutting equipment.

Adjust welding amperage and perform various welding repairs.

Light and adjust the flame on an Oxy-Acetylene torch.

Heat and cut with an oxy-acetylene torch.

Set up and adjust gauges on welding heating and cutting equipment.

## **2-STROKE CYCLE ENGINE**

Diagnose performance problems in a 2-cycle gasoline engine

Perform top end compression test.

Perform crankcase vacuum/pressure test.

Identify the component parts in a short block of a 2-cycle engine and explain their purposes.

Pressure test a 2-stroke cycle fuel system.

Explain 2- cycle engine operating theory.

Identify the types of 2-stroke cycle valves.

Inspect and service 2-stroke cycle exhaust systems.

## **4-STROKE CYCLE ENGINE**

Disassemble clean and identify engine components.

Explain 4-cycle engine operating theory.

Inspect shaft(s) bearings and gears.

Measure crankshaft end play and run-out and repair crankshaft if damaged.

Inspect and service valve train components.

Install valve springs using a valve spring compressor.

Adjust valve clearances/lash.

Measure cylinder bore for oversize out of round taper and piston to cylinder wall clearance.

Deglaze/hone a cylinder.

Perform a cylinder balance test.

Perform a cylinder compression test.

Perform a cylinder leak-down test.

Install a crankshaft and bearings.

Install a piston using a ring compressor.

Check ring end gap and side clearance.

Verify camshaft timing.

Install all gaskets and seals where needed according to specifications.

## **ENGINE FAILURE ANALYSIS**

List engine failure categories.

Identify insufficient lubrication failures.

Identify fuel system failures.

Identify cooling system failures.

Identify detonation and pre-ignition failures.

Identify the effects of over speeding.

Identify the signature breakage of a connecting rod.

Identify exhaust port piston scoring and large end bearings failure on a 2-Stroke cycle engine.

Identify the effects of excessing vibration on engine block and mounting base.

### **STARTING SYSTEMS**

Disassemble identify and describe the parts of a recoil starting system.

Replace a starter spring pulley and starter rope.

Troubleshoot and repair a starting / safety interlock circuit.

Remove service and replace a Direct Current starter.

Remove service and replace and Alternating Current starter.

Identify and describe the components of a DC starting system.

Perform a 12-volt DC starter motor current draw test.

Remove test and replace a starter relay or solenoid.

### **IGNITION SYSTEM**

Identify remove service and replace battery ignition system components

Identify remove service and replace electronic ignition system components.

Check and set ignition timing/air gap.

Test an ignition system using a spark tester.

Inspect the engine for a sheared flywheel key.

Remove inspect and replace points and condenser.

Replace a spark plug terminal and boot.

Test the solid-state transistor-controlled discharge system.

Test a capacitive discharge ignition system.

Perform timing procedures on an engine with a solid state/ electronic ignition system.

Replace an engine ignition kill switch.

### **CHARGING SYSTEMS**

Explain battery theory and perform maintenance and storage procedures.

Identify and describe the function of charging system components.

Perform a current draw test.

Test and troubleshoot the components of a charging system

Remove and replace charging system components.

### **LUBRICATION SYSTEM**

Change engine oil and filter on a variety of equipment.

Select proper oil and grade utilizing application charts.

Prepare a fuel/oil mixture for a 2-Stroke cycle engine.

Service a crankcase breather assembly.

Describe lubrication systems and their functions.

Interpret API oil ratings and SAE viscosity ratings.

Describe the standard classification of 2-cycle oils.

List common oil contaminants.

Describe differences between splash lubrication systems and a pressure lubrication system.

Describe the operation of various oil filtration system.

Describe methods of checking the oil level in an engine.

Identify the components and function of a crankcase ventilation breather assembly

Perform an oil pressure test.

Inspect a low-oil alert system.

### **GOVERNOR SYSTEMS**

Perform static and dynamic governor adjustments.

Remove service and replace pneumatic and mechanical governor.

Check top no-load speed adjust governor as needed.

Differentiate hunting/surging symptom between the fuel system and governor system.

### **BRAKE SYSTEMS**

Inspect remove service and repair mechanical brake systems.

Inspect remove service and repair hydraulic brake systems.

Inspect remove service and repair drum and disc brakes.

Explain hydraulic brake theory.

### **CLUTCH AND DRIVE SYSTEM**

Inspect service or replace belts and tensioning devices.

Inspect service or replace centrifugal clutches.

Inspect service or replace clutch discs.

Inspect service or replace sprockets and chains.

Inspect service or replace an electric power take-off.

Inspect service or replace universal joints.

Disassemble service and reassemble gearboxes and components

Disassemble service and reassemble transaxles.

Disassemble service and reassemble hydrostatic drives.

Change hydraulic fluid and filter.

### **PARTS MANAGEMENT INVOICING AND RECORDKEEPING**

Interpret illustrations graphs diagrams and tables.

Use reference materials service manuals and parts tables.

Perform inventory of parts in stock.

Locate parts and specifications using a computerized or microfiche parts reference database.

Complete a service order/invoice form.

Interpret time and flat rate information.

Order materials and supplies.

Explain a manufacturer's model number serial number engine type number and Vehicle Identification numbers (VIN).

### **WHEELS AND CHASSIS SERVICE**

Remove replace or repair tubeless tire and valve stem.

Remove replace or repair a tube type tire.

Service and replace wheel bearings and bushings.

Inspect service and replace steering components.

Inspect service and repair chassis.

### **VALUE ADDED**

80.1 - Establish Career Goals.

80.2 - Complete Job Application.

80.3 - Compose Resume.

80.4 - Prepare for Job Interview.

80.5 - Compose Employment Letters.

80.6 - Participate in Online Job Search.

80.7 - Prepare Career Portfolio.

### **MOTORCYCLE REPAIR - RECREATION AND POWER**

Identify parts of a motorcycle.

Clean and polish motorcycles.

Mount and balance motorcycle tires and wheels.

Service and replace motorcycle brake system.

Motorcycle engine parts ID and service.

Motorcycle electrical service.

Motorcycle tune up.

### **MARINE REPAIR**

Identify and service marine equipment.

Identify and repair marine engines.

### **CERTIFICATION PREPARATION**

Prepare to obtain auto and motorcycle inspection license.

Prepare to obtain engine certifications.

Prepare to complete online S/P2 certification.

Prepare to complete State Emission course.

Prepare to complete OSHA Certification.

# STUDENTS OCCUPATIONALLY & ACADEMICALLY READY



- *Earn college credits which will save you money on tuition*
  - *Shorten college attendance*
  - *Get on the right career path*
  - *Enter the job market prepared*
  - *Get a consistent education*
- *See your CTC School Counselor for More Information*

## TO QUALIFY CTC STUDENTS MUST:

1. Earn a high school diploma, achieve a minimum 2.5 GPA on a 4.0 scale in your CTC program and complete the PDE approved Program of Study.
2. Earn the industry certifications offered by your program (if applicable).
3. Achieve Competent or Advanced on the NOCTI End of Program Assessment.
4. Achieve proficiency on ALL of the Program of Study Competency Task List.
5. Provide documentation to Postsecondary Institution that you have met all of the requirements!

Find out more about the colleges offering course credits you can earn while attending RMCTC. Go to [collegetransfer.net](http://collegetransfer.net), search: PA Bureau of CTE SOAR Programs, and find your program by CIP Code.



*\*To receive college credits, qualifying students have three years from their date of graduation to apply and matriculate into the related career and technical program at a partnering institution.*

Dear Parent/Guardian:

Your son/daughter has made an exciting career choice by enrolling in Motorcycle, Marine & Small Engine program (MME).

Instruction in safe operation of machinery and tools are an important beginning to this instructional area. Before a student may work in the shop area they must show their ability to use tools in a safe manner.

Here is a list of tools and equipment used in the MME shop area:

Drills	Cut off saws
Welder	Air tools
Torch	Blowguns
Grinders	Floor Jacks
Lifts	Hammers

Please remember that passing report card grades and successful completion of the MME program is dependent upon your son/daughter first passing the safety test.

Thank you,

Paul E. Miller  
Motorcycle, Marine & Small Engine Instructor

I have read the above information and fully understand the importance of safety in the shop.

\_\_\_\_\_  
Printed Student Name & Date

\_\_\_\_\_  
Printed Parent Name & Date

\_\_\_\_\_  
Student Signature & Date

\_\_\_\_\_  
Parent Signature & Date

Dear Parent/Guardian:

The Motorcycle, Marine & Small Engine program has a strict dress code that all students must participate in for safety of all our students.

Our dress code is as follows:

1. Work boots (steel toe **NOT** required)
2. Dark blue button down work shirt (short or long sleeve)
3. Dark blue work pants or coveralls
4. During hot weather, plain dark blue T-shirts are acceptable
5. No hats or jewelry in shop area

All items can be purchased at Wal-mart, Sears, K-mart, etc.

Please note that failure to follow our dress code will negatively affect your child's grade. Safety is our #1 priority. Safety glasses and shields will be supplied by our school.

There will be no exceptions to this code. If you encounter any problems finding safety uniforms, please feel free to call me 610-921-7300.

Students will have until \_\_\_\_\_ to have all required safety/uniform requirements.

Thank you,

Paul E. Miller  
Motorcycle, Marine & Small Engine Instructor

I have read the above information and fully understand the importance of safety in the shop.

\_\_\_\_\_  
Printed Student Name & Date

\_\_\_\_\_  
Printed Parent Name & Date

\_\_\_\_\_  
Student Signature & Date

\_\_\_\_\_  
Parent Signature & Date

## Daily Work Ethic Grade - MME

Work Ethic Grade is worth 30% of your grade

### Attitude is Everything!

Each student receives a daily 'Work Ethic' Grade  
Values are from 10 down to 1  
(Unexcused absence will result in a daily grade of '0')

10=100%; 9=90%; 8=80%; 7=70%; 6=60%; 5=50%; 4=40%; 3=30%; 2=20%; 1=10%; & 0=0%

Each student starts his/her day with a '10'  
Students' can lose and regain points according to their performance

If the student is PREPARED, applies him/her self, performs well, and CLEANS UP properly that day –  
they will keep their '10';  
if the student does NONE OF THE ABOVE, they will LOSE Work Ethic grade points!

### MME WORK ETHIC POINT DEDUCTION SYSTEM – From '10'

- |                                  |   |
|----------------------------------|---|
| -8 = Refuse to work (SK)         | -7 = Safety violation/horseplay (SI)    |
| -6 = Refuse to change (SJ)       | -5 = Not returning tools/equipment (SH) |
| -5 = Not cleaning work area (SG) | -4 = Disrupting class/shop (SF)         |
| -3 = Unauthorized area (SD)      | -3 = Wasting time/materials (SE)        |
| -2 = Unacceptable language (SB)  | -1 = Late to class (SC)                 |

Your signature below acknowledges that all rules/policies have been read and understood.

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Parent Signature

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Date

---

Student Signature

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Date





## **ELECTRONIC DEVICES**

**In order to provide the best opportunities and success for our students at RMCTC, please remember the following:**

- Turn off and put away all electronic devices on the bus, prior to arriving at RMCTC.**
- All electronic devices are not allowed to be seen or heard at RMCTC. This also pertains to outside of the building at arrival and dismissal times.**

**Electronic devices include, but are not limited to, cell phones, cameras, all musical devices, tape recorders, video recorders, head sets, games and remote control items that impact audio/visual equipment.**

## Motorcycle / Scooter Safety Signature Form

I \_\_\_\_\_ have been instructed in the proper riding procedure of a  
(student name)  
motorcycle/scooter including safety rules and guidelines, as it is sometimes necessary to operate such a vehicle to be able to troubleshoot and facilitate repairs.

In order to participate in this activity, I understand that I must wear a helmet, safety glasses, proper attire and work boots. I also understand that at no time is it permissible to ride beyond the steel grate outside of the MME program area.

In addition, motorcycles/scooters may not be operated without permission from Mr. Miller, MME Instructor.

I understand that if at any time the above rules are not followed, discipline action will be taken and riding privileges will be revoked.

\_\_\_\_\_  
Parent Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Date

## STUDENT INFORMATION FORM

Please print the following information and return to your program area teacher.

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Last Name	First Name	Middle Initial
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Street Address	City or Township	State	Zip Code
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Phone Number	Home School	Grade	Sex
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Date of Birth	Program
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Parent or Guardian with whom residing (name)	Relationship
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Mother's Name	Address	Phone Number
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Place of Employment	Phone Number
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Father's Name	Address	Phone Number
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Place of Employment	Phone Number
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## GRADE REPORTING

**Purpose:** The intent of this grading procedure is to provide a student grade that accurately reflects student achievement. Progress is measured in the areas of work ethics, knowledge and the practical skills aligned to the program area learning guides. Student performance for learning guide activities and assignments are reflected in the knowledge grade. Students will be evaluated according to established program standards on an individual basis. The ClassMate grading software automatically calculates student grades using the following formula:

Work Ethic	40%
Knowledge	<u>60%</u>
	100%

Teachers must be able to justify grade percentages in the event of inquires or concerns.

### Interpreting a Grade:

**Work Ethics Grade (40%):** Each school day, every student receives a Work Ethics or daily grade. Criteria that comprise these grades are safety, student behavior, preparation/participation, productivity or time on task, professional appearance and extra effort. The Work Ethics grade range is based on a 0 to 10 model that students may earn each day depending on how many criteria they satisfactorily meet.

**NOTE: Impact of Absenteeism, Tardiness/Early Dismissals –** The direct effect of absenteeism on a students' grade will be through the Work Ethic component of the grading formula. If a student is Tardy or has an Early Dismissal the Work Ethic grade will automatically be defaulted to a five (5) from a possible ten (10) points. The instructor may change this value as they see fit.

**Knowledge Grade (60%):** Throughout the marking period, a student's cognitive knowledge about various career-specific topics will be evaluated and recorded by the instructor. Examples of knowledge activities include: lab/shop assignments, homework, quizzes, tests, and research activities. The Knowledge grade range is based on actual points earned divided by the total accumulative points.

**Skill (Learning Guide):** A task list guides every RMCTC program. Tasks are evaluated on a 0-5 scale with a 4 or 5 considered proficient. Learning guides are normally aligned to lab assignments or shop projects where a student will physically perform a task. The student and teacher will discuss, at the beginning of each quarter, student expectations and the required tasks that must be completed or "contracted" by the end of the marking period. This allows a student to work productively with the expectation to make constant progress during the marking period. All assignments, activities and rubrics associated with learning guides are documented in the "knowledge" grading component. It is important to note that poor productivity will have a negative impact on a student's grade.

**NOTE:** For the purpose of students earning a job title associated with their program area, teachers track students' skill/task work. Teachers identify specific criteria to evaluate each task performed, ranging from a 0 to 5 (not completed to mastery). Students must earn a 4 or 5, in order to credit the task towards earning the specific job title. Students have the opportunity to revisit a task multiple times until successfully receiving credit. The job titles a student earns will be listed on the student's RMCTC certificate that is awarded at Senior Recognition Night.

### CTC Letter Conversion Table

<u>Grade</u>	<u>Letter</u>
100 – 97	A+
96 – 93	A
92 – 90	A-
89 – 87	B+
86 – 83	B
82 – 80	B-
79 – 77	C+
76 – 73	C
72 – 70	C-
69 – 65	D
64 – under	F

## **GRADE REPORTING (continued)**

Final Grade average is based on the student's four (4) numerical marking period grades. The final average will directly align to the letter conversion table listed above.

If a student has three (3) marking period grades of "F" the teacher shall give appropriate consideration to that student not passing for the year. If a student is on an **upward trend** at the end of the school year, this **may** justify having the student pass for the year. If the opposite is true, and the student is on a **downward trend**, the student **should** receive a failing grade.

The individual teacher must evaluate each student's achievement in terms of the expected goals for their program area.

Failure to complete assignments, frequent lateness or absence, and demonstrated indifference to school are major contributors to student failure. **Blatant refusal** to attempt or to complete a significant number of course requirements may, by itself, justify a final course grade of "F".

The following divisions are given as a guide to recording and interpreting the grading system. It remains for each teacher to objectively and fairly rate each student, not based upon personality, but performance.

**Determination of Grades:** Teachers will give thorough consideration using all grading components in determining students' grades to both class work and test results.

### **A = Excellent**

1. This grade represents **superior work** and is distinctly an honor grade.
2. The excellent student **has reached all course objectives** with high quality achievement.
3. The excellent student displays unusual effort and works willingly and effectively in reaching required objectives.

### **B = Good**

1. This grade represents **above average** quality achievements.
2. The good student **has reached a large majority of course objectives**.
3. The good student is industrious and willing to follow directions.

### **C = Average**

1. This grade represents **satisfactory** achievement.
2. The average student **has reached a majority of course objectives**.
3. The average student is cooperative and follows directions, yet extra effort and improvement are needed for more complete mastering of the material.

### **D = Passing**

1. This grade represents a **minimally satisfactory** achievement.
2. The student is performing below-average work and **has not reached a majority of course objectives**.
3. This achievement level indicates there is a great need for improvement, daily preparation and improved dedication and attendance.

### **F = Failure**

1. This grade represents **unsatisfactory** achievement.
2. The failing student has **not reached necessary course objectives**.
3. The failing student has not attempted to complete assignments, is constantly late or absent, and generally has failed to accomplish the fundamental minimum essentials necessary in the program area.
4. It may be noted that generally a student does not fail because of a lack of ability; failure may be caused by laziness, non-dedication, or a general disregard to directions of the teacher and the unwillingness to use whatever ability he/she possesses.

**Incomplete Grades:** Incomplete grades must be updated no later than ten (10) days from the close of the marking period. As soon as the work is completed and the grade is available, it must be reported to the appropriate person.

**Failures:** Students who receive a failing final grade in a program area are permitted to repeat that program, but are urged not to do so for obvious reasons. If this situation presents itself, students and

## **GRADE REPORTING (continued)**

parents are advised to consider an alternative program which is probably more suited to the student's true interests and aptitudes and not merely satisfying a short-term or unrealistic desire.

**Attendance and its Impact upon Grades:** The importance of regular school attendance and its positive impact upon a student's performance grade cannot be overstated. If a student is absent, he or she does not have the opportunity to keep pace with their classmates and must work independently to acquire the information missed during any absence. Regardless of how well a student performs when he/she is present, habitual absenteeism usually results in a failing performance grade. This situation is not unlike the conditions of the business or industry for which the student is being trained.

**Make up Work for Absences:** Students have the opportunity to make-up school work due to an illness/being absent from school. **PROVIDED** their absence is excused. Students must submit make-up work within the following timelines:

1. One (1) to three (3) days excused absences – five (5) school days to complete assigned work.
2. (4) or more days excused absence – ten (10) school days to complete assigned work.

All work missed through unexcused absences will be graded as a zero

**Report Cards (see Progress Reports):** Students will receive a report card from the sending school district which will reflect the student's grade from their Career & Technology classes. In addition, grades are available on the parent portal.

**Student Recognition Night:** Reading Muhlenberg Career & Technology Center hosts an annual Student Recognition Night, which honors our senior students. During this event, senior students in attendance are recognized and may also receive awards that they have earned relevant to their accomplishments while attending Reading Muhlenberg CTC.

## **CAREER & TECHNICAL STUDENT ORGANIZATIONS (CTSO)**

All students enrolled in Reading Muhlenberg Career & Technology Center have the opportunity to participate in at least one Career & Technical Student Organization (CTSO) while enrolled at the CTC. Students who become members in these co-curricular organizations have the opportunity to participate in team building, leadership, community service and social events.

Students also have the opportunity to attend skill competitions where the skills they have learned are "put to the test" against other competitors. These competitions include testing of knowledge and hands-on skills in a variety of trade and leadership events. Students who are fortunate enough to win their events at a district or state competition are able to compete at the national level and travel to locations such as Louisville, KY, Kansas City, MO, San Diego, CA, Orlando, FL, and Cleveland, OH.

### **SkillsUSA**



<http://skillsusa.org>

SkillsUSA is a national organization of students, teachers and industry representatives who are working together to prepare students for careers in technical, skilled and service occupations. SkillsUSA provides quality education experiences for students in leadership, teamwork, citizenship and character development. It builds and reinforces self-confidence, work attitudes and communications skills. It emphasizes total quality at work, high ethical standards, superior work skills, life-long education, and pride in the dignity of work. SkillsUSA also promotes understanding of the free-enterprise system and involvement in community service.

### **National Technical Honor Society (NTHS)**



[www.nths.org](http://www.nths.org)

NTHS is the acknowledged leader in the recognition of outstanding student achievement in career and technical education. Over 2000 schools and colleges throughout the U.S. and its territories are affiliated with the NTHS. Member schools agree that NTHS encourages higher scholastic achievement, cultivates a desire for personal excellence, and helps top students find success in today's highly competitive workplace.

NTHS members receive: the NTHS membership certificate, pin, card, window decal, white tassel, official NTHS diploma seal, and three personal letters of recommendation for employment, college admission, or scholarships. Students will have access to our online career center including these valuable services: MonsterTRAK, Wells Fargo, Career Safe, and Career Key.

# READING-MUHLENBERG CAREER & TECHNOLOGY CENTER

## WORK BASED LEARNING Cooperative Education & Internships RULES / GUIDELINES

1. All Work Based Learning (WBL) students must have school WBL forms completed and sign up for the school Remind App before starting the job/internship. Any student who is less than 18 years of age must also have a transferable work permit.
2. **ABSENT FROM SCHOOL????? – NO WORK!!!!!!!**
  - If you are absent from school in the morning, you may **NOT** go to work in the afternoon. **YOUR JOB IS PART OF YOUR SCHOOL DAY.** If you are at a **medical, social service, or court appointment** in the AM, you **may** go to work that day. However, you must bring a note **from the agency where you were**, to your attendance secretary, the next school day.
  - If you are ill, **YOU** must call your employer to inform him/her that you will not be reporting for work.
  - **IMPORTANT:** If your name is going to appear, for any reason, on your sending school absentee list, you must also **report off to Mrs. Albarran @ 610-921-7301. Failure to report off may result in removal from WBL.**
  - If **school is closed** for a holiday, in-service day, or a snow day, you **DO** go to work on those days, if you are scheduled. If you are not scheduled, you can work additional hours if your employer allows you to work. Labor Laws need to be followed.
  - If you are suspended **out of school**, you may not work at your WBL job. This includes jobs that are scheduled with after school hours.
  - **REPETITIVE ABSENCES** at school or work will result in your removal from Work Based Learning.
3. All WBL students are required to **report to the CTC every Monday.** Any additional classroom time is at the discretion of your program area teacher. You are responsible for communicating this to your employer. On the **first Monday of each month or the first day, you are at RMTC for the month**, you must report to the **Work Based Learning Office**, where you will sign in with Mrs. Hughes. Co-op students will record hours and earnings, and then return to your program area for the remainder of the school day. **Do not forget to bring your check stubs to record your hours and earnings!** Internship students will record hours. **If you miss two monthly meetings, you will be removed from WBL.**
  - Any violations of these rules will result in the following **discipline action:**
    - 1<sup>st</sup> violation – VERBAL WARNING**
    - 2<sup>nd</sup> violation – REMOVAL FROM WORK BASED LEARNING**
4. When at work, you are guided by and are responsible to your employer. Be sure to follow all of the Employers' rules and regulations because you will be terminated for the same reasons as any other employee. Upon your first week of work, obtain a contact number in case you need to call your supervisor.
5. If your work experience is terminated for any reason, you must return to school the next day, and inform your CTC teacher and the Work Based Learning Coordinator.
6. If you wish to terminate your employment, you must discuss this with your teacher and the Work Based Learning Coordinator, and leave the job properly by giving the employer a two-week notice and a letter of resignation.
7. If you have any questions concerning the rules and guidelines of Work Based Learning, please contact the WBL coordinator at 610-921-7337.

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STUDENT SIGNATURE

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PARENT/GUARDIAN SIGNATURE