WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Power Equipment Technology (Vehicle Maintenance Technology, Other)
Course Number: 00909 AM and 00959 PM
CIP # 47.0699
Course Prerequisites: N/A

Special Requirements: Mechanical aptitude, manipulative dexterity, and a good work ethic are important for success in this field. Uniforms will be provided for students.

Course Description:

The Power Equipment Technology prepares individuals to apply technical knowledge and skills to service, repair, maintain and diagnose problems on a variety of internal – combustion engines and related systems. This entails many types and forms of recreational, commercial, oil and gas extraction equipment, and agriculture equipment. Motorcycles, watercraft, snowmobiles, All Terrain Vehicles , chainsaws, lawn and garden equipment, tractors, pumps, generator and portable power stations. This program provides instruction in the principles of internal combustion engines and many systems related to the power unit. Instruction also includes the use of technical materials and software, use and care of tools and test equipment, engine tune-up/maintenance, engine overhaul, troubleshooting and diagnostic techniques, drive lines and propulsion systems, electrical and electronic systems, suspension and steering systems and service operations, parts management, and safety.

This program of study leads to the EETC industry certification, as well as the factory OEM and Mercury BRP certifications.

Suggested Grade Level: 10 -12

Length of Course: One Semester Two Semesters 3 Years (Other)

The first year is a common core and the second and third year will involve the specialty areas of study.

Units of Credit: 3 per year **(Insert *NONE* if appropriate.)**

PDE *Certification and Staffing Policies and Guidelines (CSPG)* Required Teacher Certification(s) (Insert certificate title and CSPG#) Vocational Certification II in Small Engine Repair

Certification verified by WCSD Human Resources Department:

X Yes _____ No

Board Approved Textbooks, Software, and Materials:

Book Title: Small Gas Engines
Publisher: The Goodheart-Willcox Company
ISBN #: 1-59070-183-6
Copyright: 2003

Book Title: Motorcycles Fundamentals, Service, Repair
Publisher: The Goodheart-Willcox Company
ISBN#: 1-56637-4-479-0
Copyright: 1999

Book Title: Small Engine
Publisher: American Technical Publishers Inc.
ISBN: 0-8269-0008-9
Copyright: 2002

BOARD APPROVAL:

Date Written: February 2011

Date Approved: _____

Implementation Year: 2011-2012

Suggested Supplemental Materials:

- ThePowerPortal Program from Briggs and Stratton
- OHV program from Briggs and Stratton
- Generator programs from Briggs and Stratton
- SP-2 Safety Program
- Yamaha 5 Star Program
- Q-care E-ssentials Program B.R.P.
- Mercury University E-Skills
- Amtech
- ATP Small Engine Resource Guide
- MAVCC Curriculum

Course Standards

PA Academic Standards: (See attached state framework with course strands with accompanying standards)

Career Education and Work: 13.1.11D, 13.2.11B, D, F, and G, 13.3.11A
Science and Technology: 3.1.10C, .3.2.10A, 3.2.12B, 3.4.10A-S, 3.7.10A-D, 3.7.12.A & D, 3.8.12B,
Math: 2.3.11A-C, 2.4.11A & B, 2.5.11C, 2.5.11D, 2.7.11E
Reading, Writing, Speaking, and Listening: 1.2.11A & B, 1.11.1G-R

WCSD Academic Standards:
None

Industry or Other Standards:
(See included state framework with course strands with accompanying standards.)

EETC industry certification
OEM and Mercury BRP factory certifications

Career Standards to be addressed can be found within the planned instruction:

13.1 Career Awareness and Preparation
13.2 Career Acquisition (Getting a Job)
13.2 Career Retention and Advancement
13.4 Entrepreneurship

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP) or Gifted Individual Education Plan (GIEP).

Program of Study/CIP competencies

	Career Standards	Science & Technolog	Math	Reading	Common Core Standards	Time Frame Allotment
100 FOLLOW SAFETY RULES AND REGULATIONS.	*	3.2.10A 3.7.12D	2.4.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 1 Year 2
• Demonstrate knowledge by passing the SP/2 test					W-1 R-1 ,4,8 M-NQ	
200 DEMONSTRATE KNOWLEDGE OF THE PRINCIPLES AND DESIGN OF 2-CYCLE AND 4-CYCLE ENGINES	*	3.7.10A 3.7.12D	2.3.11A & B	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 1
300 DEMONSTRATE KNOWLEDGE OF LUBRICATION SYSTEMS.	*	3.7.10B 3.7.12D	2.3.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
400 DEMONSTRATE KNOWLEDGE OF BASIC ELECTRICITY.	*	3.4.10B 3.7.12D	2.3.11C	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 1
500 DEMONSTRATE KNOWLEDGE AND SERVICE OF COOLING SYSTEMS.	*	3.7.10B 3.7.12D	2.3.11A	1.2.11A & B	W-1 R-1 4,8 M-NQ	Year 2 Year 3
600 DEMONSTRATE KNOWLEDGE OF FUEL SYSTEMS.	*	3.4.10A & C 3.7.12D	2.5.11C	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 1
700 SERVICE FUEL SYSTEMS ON ALL ENGINES.	*	3.4.10A & C 3.8.12B 3.7.12D	2.5.11C	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 1
800 DEMONSTRATE THE KNOWLEDGE AND THE SERVICE PROCEDURES OF EXHAUST SYSTEMS.	*	3.1.10C	2.3.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3

900 DEMONSTRATE SKILL WITH MEASURING SYSTEMS AND TOOLS.	*	3.2.12B 3.8.12B 3.7.12D	2.3.11A & C	1.2.11A	W-1 R-1, 4,8 M-NQ,RN	Year 1
1000 IDENTIFY AND USE HAND TOOLS.	*	3.7.10B 3.8.12B	2.4.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 1
1100 IDENTIFY AND USE FASTENERS.	*	3.4.10A-S 3.7.10A & B3.8.12B	2.3.11A 2.2.11a	1.1.11G- R 2.2.11A	W-1 R-1, 4,8 M-NQ	Year 1
1200 WELD WITH AN OXYACETYLENE TORCH.	*	3.7.10A 3.8.12B	2.3.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
1300 WELD WITH AN ELECTRIC WELDER.	*	3.7.10A 3.8.12B	2.3.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
1400 DIAGNOSE PERFORMANCE PROBLEMS ON A 2-CYCLE GASOLINE ENGINE.	*	3.4.10B 3.8.12B	2.3.11C	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
1500 DIAGNOSE PROBLEMS ON A 4-CYCLE GASOLINE ENGINE.	*	3.4.10B 3.8.12B	2.3.11C	1.2.11A	W-1 R-1, 4,8 M- NQF-IF	Year 2 Year 3
1600 OVERHAUL A 4-CYCLE GASOLINE ENGINE.	*	3.4.10B 3.8.12B	2.3.11C	1.2.11A	W-1 R-1, 4,8 M- NQF- IF,S-ID	Year 2 Year 3
1700 OVERHAUL A 2-CYCLE ENGINE.	*	3.4.10B 3.8.12B	2.3.11C	1.2.11A	W-1 R-1, 4,8 M-NQ,F- IF, S-ID	Year 2 Year 3
1800 CONDUCT A FAILURE ANALYSIS ON GASOLINE ENGINES.	*	3.4.10A-C 3.8.12B 3.7.12D	2.3.11A- C	1.2.11A &B	W-1 R-1, 4,8 M-NQ, F-IF	Year 2 Year 3

1900 SERVICE MANUAL STARTING SYSTEMS.	*	3.1.10C 3.8.12B	2.1.11E	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 1
2000 SERVICE ELECTRICAL STARTING SYSTEMS.	*	3.7.10B 3.8.12B	2.5.11D	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
2100 SERVICE AND TEST CHARGING SYSTEMS.	*	3.710B 3.8.12B	2.5.11D	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
2200 SERVICE AND LUBRICATION SYSTEMS.	*	3.7.10B 3.8.12B	2.3.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
2300 IDENTIFY AND SERVICE GOVERNORS.	*	3.7.10A 3.8.12B 3.7.12D	2.5.8C	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 1
2400 SERVICE BREAKING SYSTEMS.	*	3.7.10A 3.8.12B	1.5.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
2500 SERVICE CLUTCHES AND EQUIPMENT DRIVES.	*	3.7.10A & B 3.8.12B	2.5.8C	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
2600 SERVICE TRANSMISSIONS, TRANS-AXLES, AND HYDROSTATIC DRIVES.	*	3.7.10A 3.8.12B	1.5.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
2700 REPAIR AND OVERHAUL TRANSMISSIONS AND DRIVES.	*	3.7.10A 3.8.12B	2.3.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
2800 ORDER AND REPAIR PARTS AND KEEP RECORDS.	*	3.7.10C & D	2.7.11E 2.2.11A	1.2.11A 1.6.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
2900 TRAILERS.	*	3.7.10A 3.8.12B	3.8.12B	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3
3000 CHAINSAW	*	3.7.10A 3.8.12B	2.5.11A	1.2.11A	W-1 R-1, 4,8 M-NQ	Year 2 Year 3

Integrated in the Standards

ASSESSMENTS

PSSA Assessment Anchors Addressed: The teacher must be knowledgeable of the PDE Assessment Anchors and/or Eligible Content and incorporate them into this planned instruction. Current assessment anchors can be found at pde@state.pa.us.

(The teacher will develop and use standards-based assessments throughout the course.)

Formative Assessments:

- **Performance Lab check sheets**
- **Quizzes**
- **Written Tests**
- **Teacher monitoring and assessment of hands-on-activities**
- **On-line testing via O.E.M. testing websites**

Summative Assessments:

- **Teacher monitoring of student work and performance evaluation checklist and/or competency check list.**
- **N.O.C.T.I. Test is given to program completers**
- **Equipment and Training Council O.P.E. test**
- **And, other on-line O.E.M. tests (Power Portal system, etc.)**

Portfolio Assessment: __x__ Yes _____ No

District-wide Final Examination Required: __x__ Yes _____ No

Course Challenge Assessment: N/A

REQUIRED COURSE SEQUENCE AND TIMELINE

(Content must be tied to objectives)

Content Sequence	Dates

(See attached state framework with course strands with accompanying time frame allotments.)
Objectives:

The student will be able to:

Service, maintain, repair and diagnose a variety of 2-cycle and 4-cycle engines and related systems associated with recreational, commercial, and oil and gas extraction industries.

WRITING TEAM: James Mechling, Power Equipment Technology Occupational Advisory Committee, Academic Coaching Team and Daniel K. Passmore

WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? ___x___ Yes _____ No
2. Does this course issue a mark/grade for the report card? ___x___ Yes _____ No
3. Does this course issue a Pass/Fail mark? _____ Yes ___x___ No
4. Is the course mark/grade part of the GPA calculation? ___x___ Yes _____ No
5. Is the course eligible for Honor Roll calculation? ___x___ Yes _____ No
6. What is the academic weight of the course?

   _____ No weight/Non credit ___x___ Standard weight

   _____ Enhanced weight (Describe)