

SOUTHEAST COMMUNITY COLLEGE
ADVANCED TECHNOLOGIES & SKILLED TRADES DIVISION
POWERSPORTS TECHNOLOGY
COURSE SYLLABUS
December 10, 2025

I. CATALOG DESCRIPTION

Course Number: MSTT1034
Course Title: Engine Performance I
Prerequisite(s): AUTT1016, AUTT1026

Catalog Description: Introduction to specific model ignition systems. Introduction to carburetion and fuel injection systems along with tuning, maintenance and servicing procedures for motorcycles, ATV's, and personal watercraft.

Credit Hours: 6.0
Class Hours: 38
Lab Hours: 158
Total Contact Hours: 196

II. COURSE OBJECTIVES: *Course will:*

- A.** Cover fuels, additives and oxygenated fuel
- B.** Cover fuel tanks, filters and fuel pumps.
- C.** Cover carburetion systems.
- D.** Cover fuel injection systems.
- E.** Cover fuel system servicing.
- F.** Cover basic fuel system diagnostics.
- G.** Cover ignition systems.
- H.** Cover ignition system adjustments and diagnostics.
- I.** Cover tune-up/maintenance procedures.
- J.** Cover emission systems.
- K.** Cover lubrication systems.
- L.** Cover chassis and linkage maintenance.
- M.** Cover tire inspection and maintenance
- N.** Cover vehicle appearance.
- O.** Cover safe practice with pushing, transporting and test riding of units.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. STUDENT LEARNING OUTCOMES: *Student will be able to:*

1. Discuss the various types of fuels and fuel mixes and requirements of fuels used in motorcycles, and ATV's.
2. Discuss the various configurations of fuel tanks, filters and fuel pumps used on motorcycles and ATV's.
3. Explain the theory, operation, and troubleshooting procedures of slide type carburetor found on motorcycles and ATV's.

4. Explain the theory, operation, and troubleshooting procedures of CV type carburetor found on motorcycles and ATV's.
5. Explain the theory, operation, and basic troubleshooting procedures of fuel injection systems found on motorcycles, ATV's.
6. Disassemble, clean, and adjust single and multiple model carburetion or fuel injection systems found on motorcycles, ATV's.
7. Perform Dyno run and analyze the results.
8. Explain the theory and operation of magneto, battery/coil, and solid state ignition systems as they relate to specific models of motorcycles, ATV's.
9. Correctly adjust point gap and ignition timing on a battery point ignition system.
10. Diagnosis/troubleshoot engine mechanical condition using compression gauges and cylinder leak-down testing.
11. Analyze ignition systems; perform needed action.
12. Properly adjust the valve train on various four-stroke engines to manufacture's specifications.
13. Complete a tune-up and or periodic maintenance interval inspection, following manufacture's procedures and specifications.
14. Complete a vehicle emission inspection, following manufacture's procedures and specifications; perform needed action.
15. Complete a vehicle oil change and filter change, following manufacturer's procedures and specifications.
16. Perform a vehicle inspection of all levers, pedals, cables, and linkages, perform needed action.
17. Perform an inspection of the vehicle tires; perform needed action.
18. Perform a vehicle inspection of chassis components and perform scheduled maintenance procedures following manufacture's procedures and specifications.
19. Complete a vehicle inspection of paint, chrome and overall condition.
20. Safely push, tie down, transport, test ride vehicle with special attention to tune-up and rideability.

B. GENERAL EDUCATION LEARNING OUTCOMES:

GELO 3: Critical Thinking & Problem Solving

Outcomes:

1. Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE

- A.** Specific Ignition Systems
- B.** CDI
- C.** TPI
- D.** Magneto CDI
- E.** Battery coil
- F.** Solid state
- G.** Carburetion theory and operation
- H.** Fuel injection theory and operation
- I.** Compression/leak-down
- J.** Valve adjustment
- K.** Tune up
- L.** Emissions
- M.** Lubrication system
- N.** Chassis/linkage maintenance
- O.** Tires

P. Appearance

Q. Test ride

V. INSTRUCTIONAL MATERIALS

Required Text(s): Modern Motorcycle Technology with workbook, Edward Abdo

VI. METHODS OF PRESENTATION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Small and large group discussions
3. Video presentation
4. Power point slides
5. Demonstrations
6. Observation
7. Handouts
8. Guest speakers
9. Field trips

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Average test scores
2. Skill exhibit
3. Class/lab attitude and participation

VIII. SPECIFIC COURSE REQUIREMENTS

A. Accumulative grade point average of 2.0 (C) or higher.

B. Average of accumulative test scores must be a minimum of 70%.

C. Student will complete all lab assignments.