SOUTHEAST COMMUNITY COLLEGE
TRANSPORTATION OCCUPATIONS
POWERSPORTS TECHNOLOGY
COURSE SYLLABUS
November 24, 2020

I. CATALOG DESCRIPTION

Course Number: MSTT2012
Course Title: Engine Repair II
Prerequisite: MSTT1112

Catalog Description: Disassembly, machining operations and reassembly procedures of two-cycle and four-cycle motorcycle, ATV, UTV and watercraft engines and transmissions.

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

II. COURSE OBJECTIVES: *Course will:*

A. Cover engine removal.
B. Cover engine disassembly.
C. Cover measuring, diagnosing and repairing two-cycle and four-cycle engines.
D. Cover properly cleaning and preparing engine crankcases, cylinders, or cylinder heads for machining operations.
E. Cover necessary procedures needed to repair and engine component to working condition.
F. Cover cleaning and preparing engine components for machining operations.
G. Cover identification of required repair procedures.
H. Cover boring and honing of cylinder.
I. Cover rebuilding a multi-piece crankshaft.
J. Cover disassembling, cleaning, grinding valves and seats, and reassembling a cylinder head.
K. Cover engine assembly and adjustments.
L. Cover engine installation.
M. Cover test rides.
N. Cover motorcycle, UTV and ATV primary drive systems.
O. Cover motorcycle and ATV clutches.
P. Cover constant mesh transmissions.

Q. Cover motorcycle, UTV and ATV automatic transmissions.
R. Cover reverse systems.
S. Cover kick start systems.
T. Cover final drive systems.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

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

1. Correctly remove an engine from the frame of a motorcycle, UTV, ATV, or personal watercraft.
2. Properly follow manufactures directions to properly disassemble an engine.
3. Correctly measure, diagnose and repair two-cycle and four cycle engines.
4. Properly clean and prepare engine crankcases, cylinders, or cylinder heads for machining operations.
5. Identify the necessary procedures needed to repair and engine component to working condition.
6. Demonstrate the proper procedure to bore and hone a cylinder.
7. Demonstrate the proper procedure to rebuild a multi-piece crankshaft.
8. Demonstrate the proper procedure to disassemble, clean, grind valves and seats, and reassemble a cylinder head.
9. Follow manufacturer's procedure to correctly assemble an engine.
10. Correctly install the engine in the frame of a motorcycle, UTV, ATV, or personal watercraft.
11. Correctly make all necessary adjustments to prepare the engine for completion of the overhaul and test ride.
12. Explain the theory, operation, diagnosis, adjustment and repair of the primary drive systems on motorcycles and ATV's.
13. Correctly diagnose and repair constant mesh transmissions.
14. Explain the theory, adjustment, and repair of automatic transmissions used on motorcycles, UTV and ATV's.
15. Explain the theory, adjustment, and repair of reverse systems used on motorcycles and ATV's.
16. Correctly diagnose and repair kick start systems on two-cycle and four-cycle engines.
17. Explain the theory, adjustment, and repair of final drive systems used on motorcycles, UTV and ATV's.

B. GENERAL EDUCATION LEARNING OUTCOMES

GELO 3: Critical Thinking & Problem Solving

Outcome:

1. Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE

A. Engine removal
B. Disassembly
C. Measurement

D. Cleaning and diagnosing
E. Boring cylinders
F. Rebuilding crankshafts
G. Grinding valves and seats
H. Reassembly
I. Installation
J. Adjustment and test ride
K. Motorcycle, UTV and ATV primary drive systems
L. Motorcycle and ATV clutches
M. Constant mesh transmissions
N. Motorcycle, UTV and ATV automatic transmissions
O. Reverse systems
P. Kick start systems
Q. Final drive systems

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 discussion
3. Video presentation
4. Transparencies
5. Demonstrations
6. Project boards
7. Flip charts
8. Handouts
9. Observations
10. Assigned lab projects
11. Field trips

VII. METHODS OF EVALUATION

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

1. Homework/notebook (if required)
2. Quizzes
3. Tests
4. Lab grades
5. Class/lab attitude and participation
6. Letter grades will be based on the SCC Standard Grade Scale Policy.

Note: See Course Information Document for specific details on how the course grades will be calculated.

VIII. SPECIFIC COURSE REQUIREMENTS

A. STUDENT MUST:

1. Complete all tests, projects, assignments, and notebook (if required).
2. Earn a final grade of 70% (2.0) or higher.
3. Program shop safety rules will be followed.
4. Please see the Course Information Document for any additional safety rules established by the instructor.

B. STUDENTS WILL TAKE A FIELD TRIP TO THE INTERNATIONAL MOTORCYCLE NEW MODEL SHOW.