

Program Information Report

Manufacturing & Automotive**Motorcycle Service Technology I (CTMST1)****Certificate****Program Effective Term: Fall 2022****High Skill Occupation**

This purpose of the Motorcycle Service Technology I program is to provide the student with fundamental certification as a motorcycle technician. The student will receive skill training in service department operations, vehicle set-up, mileage-based maintenances, and damage repair estimating. Areas of instruction include; troubleshooting, diagnosing, servicing, and the repair of primary and final drive systems, transmissions, brakes, suspensions, electrical, and induction systems. The program will provide the skills for the student to test for the State of Michigan Motorcycle Mechanics License.

Major/Area Requirements		(18 credits)
MST 110	Motorcycle Service Technology I	4
MST 120	Motorcycle Service Technology II	4
MST 130	Motorcycle Service Technology III	4
MST 140	Motorcycle Service Technology IV	4
WAF 105	Introduction to Welding Processes	2
Minimum Credits Required for the Program:		18

PROGRAM PROPOSAL FORM

- Preliminary Approval** – Check here when using this form for preliminary approval of a program proposal, and respond to the items in general terms.
- Final Approval** – Check here when completing this form after the Vice President for Instruction has given preliminary approval to a program proposal. For final approval, complete information must be provided for each item.

<p>Program Name:</p> <p>Division and Department:</p> <p>Type of Award:</p> <p>Effective Term/Year:</p> <p>Initiator:</p>	<p><u>Motorcycle Service Technology</u></p> <p><u>Vocational Technology Motorcycle Service Technology</u></p> <p><input type="checkbox"/> AA <input type="checkbox"/> AS <input type="checkbox"/> AAS <input checked="" type="checkbox"/> Cert. <input type="checkbox"/> Adv. Cert. <input type="checkbox"/> Post-Assoc. Cert. <input type="checkbox"/> Cert. of Comp.</p> <p><u>Winter 2007</u></p> <p><u>Michael Shute</u></p>	<p>Program Code:</p> <p><u>CTMST</u></p> <p>CIP Code:</p> <p><u>47.0612</u></p>
<p>Program Features Program's purpose and its goals. Criteria for entry into the program, along with projected enrollment figures. Connection to other WCC programs, as well as accrediting agencies or professional organizations. Special features of the program.</p>	<p>The programs purpose is to prepare the student for employment and/or advanced training in the Motorcycle Service Technology Industry and to give them a strong foundation for a career as a Motorcycle/ All Terrain Vehicle Technician. The entry level criteria: College-level Reading & Writing Projected Enrollment:: 32 students for first semester, based on current interest Connection to other WCC programs: MTT 102, MTT 105, WAF 105, and WAF 103 Special features: The students will be offered unequal real world training in Service Department Operations, Customer Relations, and Time Management. This training along with the high level mechanical skills training will set our students apart from all other Technicians entering the Industry.</p>	
<p>Need Need for the program with evidence to support the stated need.</p>	<p>Through out the Motorcycle Service Industry there is a universal need for entry level technicians with real world skills. Technicians that have skills beyond simply replacing parts. The technicians need to have a working understanding of the theory of Service Operations, Time Management, and Customer Relations. They need to be proficient in the troubleshooting, diagnosing, and repair of all the advanced components and systems found on the motorcycles and ATV currently available. At this time there are no known programs of this kind offered within the State of Michigan and the major out of state schools offering similar programs have yearly tuitions in excess of \$20,000.</p>	
<p>Program Outcomes/Assessment State the knowledge to be gained, skills to be learned, and attitudes to be developed by students in the program. Include assessment methods that will be used to determine the effectiveness of the program.</p>	<ol style="list-style-type: none"> 1. Students will identify the basic structure of a service department from both a theoretical and operational perspective. They will learn the importance of customer relation skills and proper work ethics. 2. The students will demonstrate proficiency in performing vehicle set-up, mileage based maintenances ,and damage repair estimates 3. Students will troubleshoot, diagnose, service, and repair; primary and final drive, transmissions, brakes, suspensions, electrical, and induction systems. 	<p><u>Assessment method</u></p> <ol style="list-style-type: none"> 1. Demonstrate to instructor/exams 2. Practical lab experience, task proficiency and flat rate time efficiency/ final exam 3. Task proficiency and flat-rate time efficiency/ final exam

Please return completed form to the Office of Curriculum & Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

<p>Curriculum</p> <p>List the courses in the program as they should appear in the catalog. List minimum credits required. Include any notes that should appear below the course list.</p>	<p align="center">Motorcycle Service Technology</p> <p><u>Major/Area Requirements</u></p> <table border="0"> <tr> <td>MST 110</td> <td>Motorcycle Service Technology I</td> <td align="right">4</td> </tr> <tr> <td>MST 120</td> <td>Motorcycle Service Technology II</td> <td align="right">4</td> </tr> <tr> <td>MTT 102</td> <td>Machining for Auto Application</td> <td align="right">2</td> </tr> <tr> <td>WAF 105</td> <td>Welding for Art and Engineering</td> <td align="right">2</td> </tr> <tr> <td>MST 130</td> <td>Motorcycle Service Technology III</td> <td align="right">4</td> </tr> <tr> <td>MST 140</td> <td>Motorcycle Service Technology IV</td> <td align="right">4</td> </tr> </table> <p>(CFMST) Occupational Completion Point: Motorcycle Service Technician (Fundamental Certification)</p> <p align="right">Minimum Credits required for Certification (20 credits)</p> <p>(CVMST) Motorcycle Service Technician (Advanced Certification)</p> <table border="0"> <tr> <td>MST 210</td> <td>Performance Engine Technology</td> <td align="right">4</td> </tr> <tr> <td>MST 220</td> <td>Dynamometer Operations</td> <td align="right">4</td> </tr> <tr> <td>WAF 103</td> <td>Heli-Arc Welding2</td> <td></td> </tr> </table> <p>CVMST) Occupational Completion Point: Motorcycle Service Technician (Advanced Certification)</p> <p align="right">Minimum Credits required for Certification (30 credits)</p>			MST 110	Motorcycle Service Technology I	4	MST 120	Motorcycle Service Technology II	4	MTT 102	Machining for Auto Application	2	WAF 105	Welding for Art and Engineering	2	MST 130	Motorcycle Service Technology III	4	MST 140	Motorcycle Service Technology IV	4	MST 210	Performance Engine Technology	4	MST 220	Dynamometer Operations	4	WAF 103	Heli-Arc Welding2	
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<p>Budget</p> <p>Specify program costs in the following areas, per academic year:</p>	<table border="1"> <thead> <tr> <th></th> <th align="center">START-UP COSTS</th> <th align="center">ONGOING COSTS</th> </tr> </thead> <tbody> <tr> <td>Faculty</td> <td align="center">\$ 14,000.</td> <td align="center">\$ 250,000.</td> </tr> <tr> <td>Training/Travel</td> <td align="center">5,000.</td> <td align="center">10,000.</td> </tr> <tr> <td>Materials/Resources</td> <td align="center">30,000.</td> <td align="center">60,000.</td> </tr> <tr> <td>Facilities/Equipment</td> <td align="center">127,000.</td> <td align="center">150,000.</td> </tr> <tr> <td>Other</td> <td align="center">.</td> <td align="center">.</td> </tr> <tr> <td align="right">TOTALS:</td> <td align="center">\$ 176000.</td> <td align="center">\$ 470000.</td> </tr> </tbody> </table>				START-UP COSTS	ONGOING COSTS	Faculty	\$ 14,000.	\$ 250,000.	Training/Travel	5,000.	10,000.	Materials/Resources	30,000.	60,000.	Facilities/Equipment	127,000.	150,000.	Other	.	.	TOTALS:	\$ 176000.	\$ 470000.						
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<p>Program Description for Catalog and Web site</p>	<p>The purpose of the Motorcycle Service Technology Program is to provide the student with fundamental certification as a Motorcycle Technician. The student will receive skill training in Service Department operations, vehicle set-up, mileage based maintenances, and damage repair estimating. Areas of instruction include; troubleshooting, diagnosing, servicing, and the repair of; primary & final drive systems, transmissions, brakes, suspensions, electrical, and induction systems. The program will provide the skills for the student to test for the State of Michigan Motorcycle Mechanics License.</p>																													

Program Information	Accreditation/Licensure – MST Fundamental Certification, State of Michigan Motorcycle Mechanic License, Brand specific on line Certification. Advisors – Bruce Greene/Michael Shute Advisory Committee- Bruce Greene/Michael Shute/members from the Motorcycle Industry, professional, and educational agencies of the region TBA. Admission requirements Articulation agreements - Continuing eligibility requirements -
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Assessment plan:

Program outcomes to be assessed	Assessment tool	When assessment will take place	Courses/other populations	Number students to be assessed
Students will identify the structure of a service department from both a theoretical and operational perspective.	Evaluation by department instructors and exams	Every third year beginning in 2009	All	50% of all students enrolled in program
Students will demonstrate time and quality proficiency in vehicle set-up, mileage based maintenances, and preparing damage repair estimates.	Practical lab and written exams constructed and evaluated by instructor. Brand specific on line testing	Every third year beginning in 2009	All	50% of all students enrolled in program
Students will demonstrate proficient skills in troubleshooting, diagnosing, and repair of power train, brake, suspension, and electrical systems.	Practical lab and written exams constructed and evaluated by instructor. Brand specific on line testing	Every third year beginning in 2009	All	50% of all students enrolled in program

Scoring and analysis plan:

1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally developed rubric, external evaluation, other). Attach the rubric.

	Objective 1	Objective 2	Objective 3
Score Criteria	Students will have a basic understanding of the operation of a Service Department	Students will perform vehicle set-up, mileage based maintenances, and damage repair estimates	Students will demonstrate proficiency in troubleshooting, diagnosing, servicing, and repair of primary, final drive, transmissions, brakes suspension, and electrical systems.
Best possible work (Exemplary) Consistently meets all or most(90 %) all criteria			
Above average level work Meets (80%) of the criteria			
Intermediate level (proficient) meets (70%) of the criteria			
Worst acceptable level(Marginal) Meets few (60%) of the criteria			
Unacceptable work. Meets 59% or less of the criteria			

2. → Indicate the standard of success to be used for this assessment.

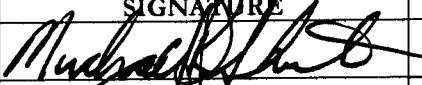
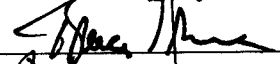
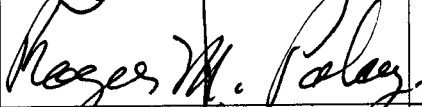

Average of 75% of students on the rubric, per each outcome.

3. Indicate who will score and analyze the data.

Department member, faculty, or chair not teaching the course that term.

4. Explain how and when the assessment results will be used for program improvement.

All students will be placed on the rubric above according to tests and observations.

REVIEWER	PRINT NAME	SIGNATURE	DATE
Department Chair/Area Director	Michael R. Shute		11/16/2006
Dean	Bruce Greene		11/16/2006
Vice President for Instruction <input type="checkbox"/> Approved for Development <input checked="" type="checkbox"/> Final Approval			11/22/07
President			1/23/07
Board Approval			

Logged 11/17/06 sjf
DB 2/8/07

Program Information Report

Automotive Technologies

Motorcycle Service Technology I (CTMST1)

Certificate

UNDER CONSTRUCTION

Program Effective Term: Fall 2007

This purpose of the Motorcycle Service Technology I Program is to provide the student with fundamental certification as a motorcycle technician. The student will receive skill training in service department operations, vehicle set-up, mileage-based maintenances, and damage repair estimating. Areas of instruction include; troubleshooting, diagnosing, servicing, and the repair of primary and final drive systems, transmissions, brakes, suspensions, electrical, and induction systems. The program will provide the skills for the student to test for the State of Michigan Motorcycle Mechanics License.

Major/Area Requirements		(20 credits)
MST 110	Motorcycle Service Technology I	4
MST 120	Motorcycle Service Technology II	4
MST 130	Motorcycle Service Technology III	4
MST 140	Motorcycle Service Technology IV	4
MTT 102	Machining for Auto Applications	2
WAF 105	Welding for Art and Engineering	2

Minimum Credits Required for the Program: 20



Purpose: The purpose of this program is to prepare students for employment and /or advanced training in the motorcycle service technology industry and for a career as a Motorcycle /All Terrain Vehicle Technician.

Structure: Level One (MST)

Motorcycle 110: Motorcycle / ATV 1

(120 contact hours) 4 credit hours

Lab time will be necessary. On line "brand specific" test will be necessary. After completion of the course the student will be able to perform the following:

1. Identify federal and state standards for health and safety.
2. Identify safety requirements for shop organization and management.
3. Identify and demonstrate the proper use of basic hand tools.
4. Identify and demonstrate the proper use and care of basic shop tools and equipment.
5. Identify basic power train design and operation / 2 stroke / 4 stroke / unit / non-unit construction.
6. Identify tolerances and specifications of engine components.
7. Demonstrate proficiency in tear down and assembly of basic engine designs.
8. Identify theory and operation basic ignition and fuel systems.
9. Describe professional work ethics.
10. Identify professional dress standards.
11. Identify and demonstrate proper customer relations skills.
12. Identify theory and operational structure of a service department.
13. Identify principles of time management.
14. Interpret information in parts and service manuals and other technical media.
15. Recognize and interpret vehicle identification number information.
16. Demonstrate proficiency in performing pre-delivery inspection (assembly) of motorcycles.
17. Demonstrate proficiency in installing and balancing tires.
18. Demonstrate proficiency in removal and replacement of wheel bearings.
16. Demonstrate proficiency in performing mileage base maintenances.

After completion of the above courses, the student could, at this time, be placed into an appropriate dealership in an apprenticeship program. They could earn two credit hours (**Practicum 150**) toward their next level of certification based on their task proficiency.



Structure: Level Two (CFMST)

MST 120: Motorcycle / ATV 2

(120 contact hours) 4 credit hours

Lab time will be necessary. On line "brand specific" tests will be necessary. After completion of the course the student will be able to perform the following:

1. Explain the driveline operational theory.
2. Identify parts and functions of different frames and suspension systems.
3. Identify parts and functions of different brake systems.
4. Diagnose, service, and repair primary-drive systems.
5. Diagnose, service, and repair clutch assemblies.
6. Diagnose, service, and repair transmissions.
7. Diagnose, service, and repair final drive systems.
8. Diagnose, service, and repair front and rear suspension systems.
9. Diagnose, service, and repair hydraulic disc brake systems.

Structure: level Three (CFMST)

MST 130: Motorcycle / ATV 3

(120 contact hours) 4 credit hours

Lab time will be necessary. On line "brand specific" tests will be necessary. After completion of the course the student will be able to perform the following:

1. Identify electrical safety precautions.
2. Read and interpret wiring diagrams.
3. Read, interpret, and follow service manual electrical flow charts.
4. Utilize electrical test equipment to isolate defective components.
5. Troubleshoot and repair wiring harnesses.
6. Troubleshoot and repair charging systems.
7. Troubleshoot and repair ignition systems.
8. Troubleshoot and repair electrical starting systems.
9. Identify components and operation of carburetion and fuel injection systems
10. Diagnose, service, and repair slide type carburetors
11. Diagnose, service, and repair constant-velocity type carburetors
12. Diagnose, service, and repair fuel injection systems.



Structure: Level Four (CFMST)

Motorcycle 140: Motorcycle / ATV 4

(120 contact hours) 4 credit hours

Lab time will be necessary. On line “brand specific” tests will be necessary. After completion of the course the student will be able to perform the following:

1. Identify engine components and operational theory.
2. Diagnose, service, and repair a single cylinder 2 stroke top end.
3. Diagnose, service, and repair a single cylinder 4 stroke top end.
4. Diagnose, service, and repair a multi-cylinder 4 stroke top ends.
5. Demonstrate basic machining procedures for engine top end rebuild.

Occupational completion point “**Motorcycle Service Technician / Entry Level**” (CFMST). After completion of the above courses the student would be certified, and licensed by the state as an entry level Motorcycle Technician. The student could continue in their apprenticeship and / or enter in to the Motorcycle Service Technology Advanced Program.

Motorcycle Service Technician: Advanced (CVMST)

MST 210: Performance Engine Technology

(120 contact hours) 4 credit hours

Lab time will be necessary. On line “brand specific” tests will be necessary. After completion of the course the student will be able to perform the following:

1. Identify components and theory of performance enhancement systems.
2. Identify advantages of different combustion chamber design.
3. Identify advantages of different cam shaft designs.
4. Design and identify the advantages of, a performance enhancement package.
5. Demonstrate proficiency in the installation of performance enhancement components.

Motorcycle 220: Advanced Tuning, Dynamometer Operation (120 contact hours) **4 credit hours**

Lab time will be necessary. On line “brand specific” tests will be necessary. After completion of the course the student will be able to perform the following:

1. Identify components and operation of a motorcycle and ATV (all terrain vehicle) load control dynamometer.
2. Demonstrate proficiency in the operation of a dynamometer as a diagnostic tool.
3. Employ the proper use of a dynamometer as a tuning aide.
4. Demonstrate proficiency in advanced tuning of fuel injected equipped motorcycles and ATV's.
5. Demonstrate proficiency in the design of custom fuel and ignition maps for fuel injected equipped motorcycles and ATV's.

Occupational completion point: “**Motorcycle Technician Advanced**” (CVMST)

After completion and certification of all the above levels of courses the student could enter the work force as a certified Motorcycle Service Technician and /or continue their advanced training in Custom Motorcycles and Concepts.



Structure: (CMC) TBA credit hours

Motorcycle 250: Custom Motorcycles and Concepts (TBA contact hours) TBA credit hours
Lab time will be necessary. After completion of the course the student will be able to understand design concepts and team build structure.

1. Frame design and fabrication.
2. Metal forming.
3. Paint and body finishing.
4. Electronics and wiring.
5. Final assembly.

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shades to body

MST 110: Motorcycle / ATV 1

4 credits

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This introductory level course provides the student with a basic understanding of the theory and operation of a motorcycle service department. Students will learn to be proficient in identifying the design, specifications, operation, tolerances, and performing the tear down, and assembly of basic engines. The student will develop skills and knowledge in; time management, interpreting parts and service manuals, and the proper use of hand and shop tools, become proficient in pre-delivery inspections and mileage based maintenances. This class provides the knowledge to prepare the students for more advanced courses and / or entering into an apprenticeship as an entry level technician.

MST 120: Motorcycle / ATV 2

4 credits

Level 2 Prerequisites: MST Core Courses, with a minimum grade "C" or consent required.

30 lecture, 90 lab, 0 clinical, 0 other, 120 total conduct hours

In this course students will learn to identify and explain the operational theory of a motorcycle driveline. Diagnose, service, and repair primary-drive systems, clutch assemblies, transmissions, wheels, and final-drive systems. Students learn the theory of frame geometry and design. They will learn to identify the operation and design of different suspension and braking systems; to diagnose, service, and repair front and rear suspensions, and basic and advanced hydraulic disc brake systems.

MST 130: Motorcycle / ATV 3

4 credits

Level 3 Prerequisites: MST Level Two, with a minimum grade "C" or consent required.

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course will teach the student to read and interpret wiring diagrams and flow charts. The focus will be on problem solving strategies; isolating defective components, troubleshooting and repair of; wiring harnesses, charging systems, ignition systems, and starting systems. The principles, components, and operation of fuel delivery systems will be covered. The student will learn to troubleshoot, service, and repair both carbureted and fuel injected systems.

MST 140: Motorcycle / ATV 4

4 credits

Level 4 Prerequisites: Completion of MST level 3, with minimum grade "C" or consent required.

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Through a combination of classroom and hands-on skills training, students learn the operational theory of both 2-stroke and 4-stroke engines. Students will learn to diagnose, service and repair; single and multiple cylinder engines.

MST 210: Performance Engine Technology (Advanced) 4 credits

Level 11 Prerequisites: Completion of (CFMST), with minimum grade "C" or consent required.

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

The student will learn to identify the theory and components of a performance engine. They will learn the advantages and disadvantages of raising the level of peak performance of an engine. The course will supply the knowledge to design and install a performance enhancement package.

MST 220: Dynamometer Operations (Advanced) 4 credits

Level 11 Prerequisites: Completion of (CFMST), with minimum grade "C" or consent required.

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Students will learn to identify the components and operation of a load control dynamometer. The primary emphasis is on the student learning to use the dynamometer as a diagnostic and tuning tool. The course will instruct the student in the design and application of custom fuel and ignition mapping.

The MST 120
Course contained
the 2 trace,

Motorcycle Service Technology (MST)

Core Courses

(8 credits)

<i>W'07</i>	MST 110	Motorcycle / ATV 1	4
<i>concurrent</i>	MTT 102	Machining for Auto Application	2
	WAF 105	Welding for Art and Engineering	2

Core courses must be taken before major courses.

(8 credits)

S/S

Major/Area Requirements Level Two

(6 credits)

<i>MST 110 Pre-req</i>	MST 120	Motorcycle / ATV 2	4
	MTT 105	Machine Tools Skills Laboratory	2
	Practicum 150	Apprenticeship	2

Minimum Credits required for the Program

(14 credits)

7'07

Major/Area Requirements Level Three

(6 credits)

	MST 130	Motorcycle / ATV 3	4
	CIS (MST)	Computer Skills for Dealer Operations	2
	Practicum 151	Apprenticeship	2

Minimum Credits required for this program

(20 credits)

W'08

Major/Area Requirements (CFMST)

(6 credits)

	MST 140	Motorcycle / ATV 4	4
	WAF 103	Heli-Arc Welding	2
	Practicum 152	Apprenticeship	2

Minimum Credits required for Certification

(26 credits)

**Motorcycle Service Technician (CVMST)
(Advanced Certificate)**

(8 credits)

MST 210 Performance Engine Technology

4

MST 220 Dynamometer Operations

4

Minimum Credits required for Certification

(34 credits)