Washtenaw Community College Comprehensive Report

ATT 225 Advanced Dynamometer Tuning Systems
Effective Term: Fall 2025

Course Cover

College: Advanced Technologies and Public Service Careers
Division: Advanced Technologies and Public Service Careers
Department: Transportation Technologies
Discipline: Automotive & Transportation Tech (new)
Course Number: 225
Org Number: 14100
Full Course Title: Advanced Dynamometer Tuning Systems
Transcript Title: Adv Dynamometer Tuning Systems
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Course Change
Change Information:
Consultation with all departments affected by this course is required.
Course discipline code & number
Course title
Course description
Outcomes/Assessment
Objectives/Evaluation
Rationale: Update the course for the new discipline.
Proposed Start Semester: Fall 2025
Course Description: In this course, students will learn the skills necessary to operate a load control dynamometer as an advanced diagnostic and tuning tool. The primary emphasis is on teaching students to use the dynamometer to troubleshoot and tune fuel injection systems on motorcycles and All-Terrain Vehicles (ATVs). Through the use of advanced testing techniques, students will learn to diagnose drivability issues and develop mapping strategies used by both original equipment manufacturers (OEMs) and aftermarket companies. This course was previously MST 225.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 45 **Student:** 45
Lab: Instructor: 60 **Student:** 60
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 105 **Student:** 105
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

Prerequisite

ATT 220 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Diagnose Electronic Fuel Injection (EFI) drivability issues using a load control dynamometer with efficiency and accuracy.
   Assessment 1
   Assessment Tool: Outcome-related practical lab exam
   Assessment Date: Fall 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Rubric
   Standard of success to be used for this assessment: 70% of students will score 70% or higher.
   Who will score and analyze the data: Departmental faculty

2. Create a test sequence to tune a vehicle using a load control dynamometer.
   Assessment 1
   Assessment Tool: Outcome-related practical lab exam
   Assessment Date: Fall 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Rubric
   Standard of success to be used for this assessment: 70% of students will score 70% or higher.
   Who will score and analyze the data: Departmental faculty

Course Objectives

1. Demonstrate the safe operation of a load control dynamometer.
2. Troubleshoot problems with electronic fuel injection systems.
3. Apply OEM tuning systems to achieve accurate and effective tuning results.
4. Tune fuel-injected motorcycles and ATVs using the dynamometer.
5. Demonstrate proficiency in the software used for diagnostic test runs.
6. Perform effective diagnostic test runs on the dynamometer.
7. Recognize symptoms of electronic fuel injection (EFI) system issues.
8. Develop strategies for data collection from fuel-injected motorcycles and ATVs.
9. Incorporate aftermarket performance components to enhance drivability performance.
10. Incorporate OEM and aftermarket tuning software to improve drivability and performance.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

Reviewer	Action	Date
Faculty Preparer:		
Shawn Deron	*Faculty Preparer*	*Mar 10, 2025*
Department Chair/Area Director:		
Rocky Roberts	*Recommend Approval*	*Mar 10, 2025*
Dean:		
Eva Samulski	*Recommend Approval*	*Mar 10, 2025*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Apr 08, 2025*
Assessment Committee Chair:		
Jessica Hale	*Recommend Approval*	*Apr 13, 2025*
Vice President for Instruction:		
Brandon Tucker	*Approve*	*Apr 15, 2025*

WASHTENAW COMMUNITY COLLEGE

MASTER SYLLABUS

Course Discipline Code & No: MST 225 **Title:** Advanced Dynamometer Tuning Systems **Effective Term** Fall 08

Division Code: VCT **Department Code:** MST **Org #:** 14140

Don't publish: ☐ College Catalog ☐ Time Schedule ☐ Web Page

Reason for Submission. Check all that apply.

- ☒ New course approval
- ☐ Three-year syllabus review/Assessment report
- ☐ Course change
- ☐ Reactivation of inactive course
- ☐ Inactivation (Submit this page only.)

Change information: Note all changes that are being made. Form applies only to changes noted.

- ☐ Consultation with all departments affected by this course is required.
- ☐ Course discipline code & number (was _____)*
  *Must submit inactivation form for previous course.
- ☐ Course title (was _____)
- ☐ Course description
- ☐ Course objectives (minor changes)
- ☐ Credit hours (credits were: _____)
- ☐ Total Contact Hours (total contact hours were: 105)
- ☐ Distribution of contact hours (contact hours were: lecture: _____ lab _____ clinical _____ other _____)
- ☐ Pre-requisite, co-requisite, or enrollment restrictions
- ☐ Change in Grading Method
- ☐ Outcomes/Assessment
- ☐ Objectives/Evaluation
- ☐ Other _____

Rationale for course or course change. Attach course assessment report for existing courses that are being changed.

Approvals Department and divisional signatures indicate that all departments affected by the course have been consulted.

Department Review by Chairperson ☐ New resources needed ☒ All relevant departments consulted

Print: Michael R. Shute (Faculty/Preparer) Signature: Michael R. Shute Date: 7-1-08

Print: Michael R. Shute (Department Chair) Signature: Michael R. Shute Date: 7-1-08

Division Review by Dean

☒ Request for conditional approval

Recommendation ☒ Yes ☐ No _____ (Dean's/Administrator's Signature) 7-1-08 (Date)

Curriculum Committee Review

Recommendation _____

☐ Tabled ☒ Yes ☐ No _____ (Curriculum Committee Chair's Signature) 9/17/08 (Date)

Vice President for Instruction Approval

R. M. Pollay 9/17/08 _____ (Vice President's Signature) 7/7/08 (Date)

Approval ☒ Yes ☐ No ☒ Conditional

Do not write in shaded area.

Entered in: Banner 7/8 **C&A Database** 7/8 **Log File** 7/8 7/8/08 sj 9/19 gr **Basic skills spreadsheet updated** ☐ **Contact fee** ☑

Please return completed form to the Office of Curriculum & Assessment.

***Complete ALL sections which apply to the course, even if changes are not being made.**

Course:	**Course title:**
MST 225	Advanced Dynamometer Tuning Systems

Credit hours: 4

If variable credit, give range:

_____ to _____ credits

Contact hours per semester:

	Student	Instructor
Lecture:	45	45
Lab:	60	60
Clinical:	0	0
Practicum:	0	0
Other:		
Totals:	105	105

Are lectures, labs, or clinicals offered as separate sections?

☐ Yes - lectures, labs, or clinicals are offered in separate sections

☒ No - lectures, labs, or clinicals are offered in the same section

Grading options:

☐ P/NP (limited to clinical & practica)

☐ S/U (for courses numbered below 100)

☒ Letter grades

Prerequisites. Select one:

☒ College-level Reading & Writing ☐ Reduced Reading/Writing Scores (Add information at Level I prerequisite) ☐ No Basic Skills Prerequisite (College-level Reading and Writing is not required.)

In addition to Basic Skills in Reading/Writing:

Level I (enforced in Banner)

	Course	Grade	Test	Min. Score	Concurrent Enrollment (Can be taken together)	Corequisites (Must be enrolled in this class also during the same semester)
☒ and ☐ or	MST 220	C			☐	
☐ and ☐ or					☐	
☐ and ☐ or					☐	

Level II (enforced by instructor on first day of class)

	Course	Grade	Test	Min. Score
☐ and ☐ or				
☐ and ☐ or				

Enrollment restrictions (In addition to prerequisites, if applicable.)

☐ and ☐ or Consent required ☐ and ☐ or Admission to program required Program: _____ ☐ and ☐ or Other (please specify): _____

Please send syllabus for transfer evaluation to:

Conditionally approved courses are not sent for evaluation.

Insert course number and title you wish the course to transfer as.

☐ E.M.U. as _____

☐ U of M as _____

☐ _____ as _____

☐ _____ as _____

☐ _____ as _____

☐ _____ as _____

Course	Course title
MST 22 5	Advanced Dynamometer Tuning Systems

Course description State the purpose and content of the course. Please limit to 500 characters.	Students will be taught the skills to operate a load control dynamometer as a advanced tuning tool. The primary emphasis is on the proper use of a dynamometer to troubleshoot and tune the fuel injection systems on motorcycles and ATV's. They will learn the application of various tuning technologies used by both the OEM's and aftermarket companies.

Course outcomes List skills and knowledge students will have after taking the course. **Assessment method** Indicate how student achievement in each outcome will be assessed to determine student achievement for purposes of course improvement.	**Outcomes** (applicable in all sections)	**Assessment** Methods for determining course effectiveness
	1) Students will demonstrate time and quality proficiency in the use of a load control dynamometer to trouble shoot electronic fuel injection systems.	Final and Practical Lab Exams
	2) Students will demonstrate time and quality proficiency in the use of a load control dynamometer as a tuning tool for advanced electronic fuel injection systems.	Final and Practical Lab Exams

Course Objectives Indicate the objectives that support the course outcomes given above. **Course Evaluations** Indicate how instructors will determine the degree to which each objective is met for each student.	**Objectives** (applicable in all sections)	**Evaluation** Methods for determining level of student performance of objectives
	Demonstrate the proficiency in the use of all controls and software used in the operation of diagnostic test runs on a load control dynamometer. (outcome #1)	Demonstrate to instructor and exams
	To become proficient in the use of a load control dynamometer to trouble shoot problems with electronic fuel injection systems. (outcome #1)	Demonstrate to instructor and exams
	Demonstrate proficiency in the use of a load control dynamometer to properly tune fuel injected motorcycles and ATV's using OEM tuning systems. (outcome #2)	Graded on task proficiency and flat rate time efficiency/final exam.
	Demonstrate proficiency in the use of a load control dynamometer to properly tune fuel injected motorcycles and ATV's using aftermarket performance components and tuning systems. (outcome #2)	Graded on task proficiency and flat rate time efficiency/final exam.

List all new resources needed for course, including library materials.

Student Materials:

List examples of types		Estimated costs
Texts Supplemental reading Supplies Uniforms Equipment Tools Software	SAFETY GLASSES	$ 10.00

Equipment/Facilities: Check all that apply. (All classrooms have overhead projectors and permanent screens.)

Check level only if the specified equipment is needed for all sections of a course.

- ☐ Level I classroom
  Permanent screen & overhead projector
- ☐ Level II classroom
  Level I equipment plus TV/VCR
- ☒ Level III classroom
  Level II equipment plus data projector, computer, faculty workstation

- ☐ Off-Campus Sites
- ☐ Testing Center
- ☒ Computer workstations/lab
- ☐ ITV
- ☐ TV/VCR
- ☐ Data projector/computer
- ☐ Other _____

Assessment plan:

Learning outcomes to be assessed (list from Page 3)	Assessment tool	When assessment will take place	Course section(s)/other population	Number students to be assessed
Students will demonstrate time and quality proficiency in the use of a load control dynamometer to trouble shoot electronic fuel injection systems.	Final and Practical Lab Exams	Every 3rd year to begin Winter 2010.	All	All
Students will demonstrate time and quality proficiency in the use of a load control dynamometer as a tuning tool for advanced electronic fuel injection systems.	Final and Practical Lab Exams	Every 3rd year to begin Winter 2010.	All	All

Scoring and analysis of assessment:

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

   Written final exam will be scored using answer key.
   Practical exam will be scored using the departmentally developed rubric.

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

   Average of 70% of the student placements will be at or above the intermediate level. (70% or higher) on both written and practical.

3. Indicate who will score and analyze the data.

Department member not teaching the course that term will score the written test. Practical exam will be scored and analyzed by the instructor .

4. Explain the process for using assessment data to improve the course.

Departmental faculty will review the results of the assessment data. Areas of weakness will be identified and course activities will be adjusted to better prepare the students.