

Mt. San Jacinto Community College District Secondary and Community College Course Articulation Agreement

Statement of Intent

This agreement enables students to receive college credit and/or a waiver of a prerequisite coursework at the secondary level comparable to courses offered by Mt. San Jacinto Community College District. The granting of college "credit-by-examination" is based upon achievement competencies through a course, or courses, as defined in Attachment B, which specifies conditions of the articulation agreement.

Terms of Agreement

This agreement between Mt. San Jacinto Community College District and high schools or R.O.P. shall remain in force for an indefinite period of time but shall be reviewed for consideration of continuation every three years. This review will include an examination of up-to-date course outline and a discussion of current teaching methodologies and stated competencies. Either party to the agreement may terminate this agreement at the close of any school year by proper written notice delivered to the Superintendent/President of Mt. San Jacinto College or to the Superintendent of the secondary or R.O.P. educational institution.

AUME 122
Engine Performance I


Riverside County/ROP Course # 10058
NATEF Engine Performance

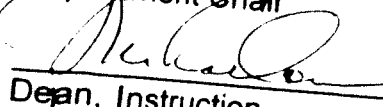
Name and Number of Course/MSJCCD

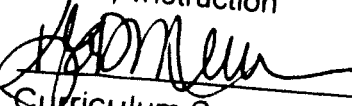
Name & Number of Course/High School/ROP

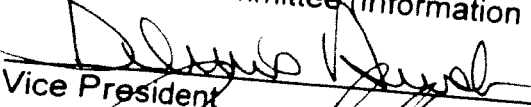
Mt. San Jacinto Community College District

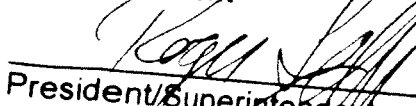
Secondary/ROP Educational Institution

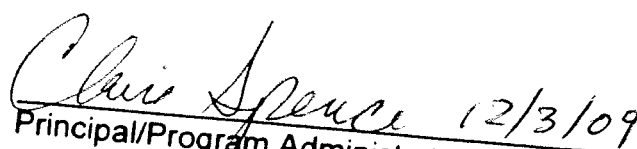

Department Chair 9/15/09
Date

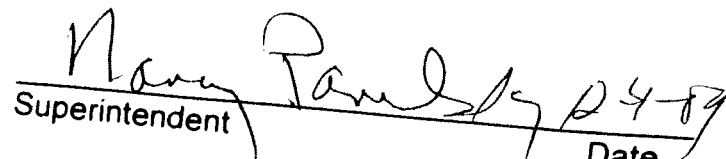

Dean, Instruction 9/15/09
Date


Curriculum Committee (Information item) 11/12/09
Date


Vice President 11/13/09
Date


President/Superintendent 11/18/09
Date


Principal/Program Administrator 12/3/09
Date


Superintendent 12/4/09
Date



**Mt. San Jacinto Community College District
Secondary and Community College
Course Articulation Agreement**

Attachment

Statement of Intent

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AUME 122
Engine Performance I

(Name and Number of course/MSJCCD)

Riverside County / ROP Course #10058
NATEF Engine Performance

(Name and Number of Course/High School/R.O.P.)

Mt. San Jacinto Community College District

Secondary/R.O.P. Educational Institution

Cheryl Ann Thompson 4/7/07
(Department Chair) (Date)

Clari Spencer 12/3/09
(Principal Program Administrator) (Date)

Mark ... 4/2/07
(Dean, Instruction) (Date)

Robert Dowling 4/25/07
(Curriculum Committee-Information item) (Date)

P. Deegan 7/11/07
(Vice President) (Date)

[Signature] 7/11/07
(President Superintendent) (Date)

Nancy Powell 12-7-09
(Superintendent) (Date)



**Mt. San Jacinto Community College District
Secondary and Community College
Articulated Course Standards and Criteria**

Date October 24, 2006

Engine Performance AUME 122

NATEF Engine Performance
Hemet High School, Course # 16600

Description of Articulated High School or ROP Course Standards
(Please attach the course outline)

Content or Theory Summary: This course provides an in-depth study of the design and operation of domestic and import ignition, fuel, and emission control systems. Emphasis is placed on the problems of accurate diagnosis and the proper repair procedures for these engine systems. This course is designed for the learner wishing to develop skills in diagnosis and repair contemporary technologies of engine performance. In addition, this course will prepare the learner for continuation towards later model technology and eventually computer-controlled systems. In order to articulate this course the student must pass the NATEF, AYES, or MSJC A-8 Exit exam, and have completed documentation specific for each NATEF task that is completed including a minimum of 30 Priority 1, 15 Priority 2, and 7 Priority 3 tasks. The maximum number of units that a student may articulate in the Automotive Technology program is limited to 5.5 units.

Competencies:

VIII. ENGINE PERFORMANCE

A. General Engine Diagnosis

- | | NATEF* |
|--|--------|
| 1. Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction. | P-1 |
| 2. Identify and interpret engine performance concern; determine necessary action. | P-1 |
| 3. Research applicable vehicle and service information, such as engine management system operation, vehicle service history, service precautions, and technical service bulletins. | P-1 |
| 4. Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, and calibration decals). | P-1 |



Mt. San Jacinto Community College District Secondary and Community College Articulated Course Standards and Criteria

Attachment

5. Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action. P-2
 6. Diagnose abnormal engine noise or vibration concerns; determine necessary action. P-2
 7. Diagnose abnormal exhaust color, odor, and sound; determine necessary action. P-2
 8. Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary action. P-1
 9. Perform cylinder power balance test; determine necessary action. P-1
 10. Perform cylinder cranking compression tests; determine necessary action. P-1
 11. Perform engine running compression test; determine necessary action. P-2
 12. Perform cylinder leakage test; determine necessary action. P-1
 13. Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns with an oscilloscope and/or engine diagnostic equipment; determine necessary action. P-1
 14. Prepare 4 or 5 gas analyzer; inspect and prepare vehicle for test, and obtain exhaust readings; interpret readings, and determine necessary action. P-1
 15. Verify engine operating temperature; determine necessary action. P-1
 16. Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses; perform necessary action. P-1
 17. Verify correct camshaft timing. P-2
- VIII. ENGINE PERFORMANCE**
- B. Computerized Engine Controls Diagnosis and Repair**
1. Retrieve and record stored OBD I diagnostic trouble codes; clear codes. P-3



Mt. San Jacinto Community College District Secondary and Community College Articulated Course Standards and Criteria

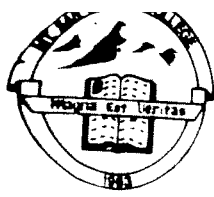
Attachment I

2. Retrieve and record stored OBD II diagnostic trouble codes; clear codes when applicable P-1
3. Diagnose the causes of emissions or driveability concerns resulting from malfunctions in the computerized engine control system with stored diagnostic trouble codes. P-1
4. Diagnose emissions or driveability concerns resulting from malfunctions in the computerized engine control system with no stored diagnostic trouble codes; determine necessary action. P-1
5. Check for module communication (including CAN/BUS systems) errors using a scan tool. P-2
6. Inspect and test computerized engine control system sensors, powertrain control module (PCM), actuators, and circuits using a graphing multimeter (GMM)/digital storage oscilloscope (DSO); perform necessary action. P-1
7. Obtain and interpret scan tool data. P-1
8. Access and use service information to perform step-by-step diagnosis. P-1
9. Diagnose driveability and emissions problems resulting from malfunctions of interrelated systems (cruise control, security alarms, suspension controls, traction controls, A/C, automatic transmissions, non-OEM-installed accessories, or similar systems); determine necessary action. P-3
10. Perform active tests of actuators using scan tool; determine necessary action. P-1

VIII. ENGINE PERFORMANCE

C. Ignition System Diagnosis and Repair

1. Diagnose ignition system related problems such as no-starting, hard starting, engine misfire, poor driveability, spark knock, power loss, poor mileage, and emissions concerns on vehicles with electronic ignition (distributorless) systems; determine necessary action. P-1



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2. Diagnose ignition system related problems such as no-starting, hard starting, engine misfire, poor driveability, spark knock, power loss, poor mileage, and emissions concerns on vehicles with distributor ignition (DI) systems; determine necessary action. P-1
3. Inspect and test ignition primary circuit wiring and solid state components; perform necessary action. P-2
4. Inspect, test and service distributor. P-3
5. Inspect and test ignition system secondary circuit wiring and components; perform necessary action. P-2
6. Inspect and test ignition coil(s); perform necessary action. P-1
7. Check and adjust ignition system timing and timing advance/retard (where applicable). P-3
8. Inspect and test ignition system pick-up sensor or triggering devices; perform necessary action P-1

VIII. ENGINE PERFORMANCE

D. Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair

1. Diagnose hot or cold no-starting, hard starting, poor driveability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems on vehicles with injection-type fuel systems; determine necessary action. P-1
2. Check fuel for contaminants and quality; determine necessary action. P-3
3. Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; perform necessary action. P-1
4. Replace fuel filters. P-1



Mt. San Jacinto Community College District Secondary and Community College Articulated Course Standards and Criteria

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- | | | |
|----|---|-----|
| 5. | Inspect and test cold enrichment system and components, perform necessary action | P-3 |
| 6. | Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air. | P-2 |
| 7. | Inspect and test fuel injectors. | P-1 |
| 8. | Check idle speed. | P-2 |

*** NATEF ENGINE PERFORMANCE TASK PRIORITY BREAKDOWN**

P-1 = 32 **No. Completed** **(95% - 30 Required for NATEF)**
P-2 = 19 **No. Completed** **(80% - 15 Required for NATEF)**
P-3 = 14 **No. Completed** **(50% - 7 Required for NATEF)**

Measurement Methods:

Grading Policy

1. **Excellent - A**
 - a. Complete all minimum course objectives.
 - b. Participate in 90% of class discussion and lab assignments. Make-up time available.
 - c. Maintain test score average 86% or more.
 - d. Demonstrate good work habits in manipulative activities appropriate for entry level automotive service employees. The major points of evaluation in this area include:
 1. safety
 2. cleanliness of work areas and oneself
 3. assistance to and with others
 4. care of customer vehicles and other property
 5. punctuality
2. **Above Average - B**
 - a. Complete all minimum course objectives.
 - b. Participate in 80% of class discussions and lab assignments. Make-up time available.
 - c. Maintain test score average 75% - 85%.



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Secondary and Community College

Articulated Course Standards and Criteria

- d. Demonstrate good work habits in manipulative activities appropriate for entry level automotive service employees. The major points of evaluation in this area include
 1. safety
 2. cleanliness of work areas and oneself
 3. assistance to and with others
 4. care of customer vehicles and other property
3. **Average - C**
 - a. Complete all minimum course objectives.
 - b. Participate in 70% of class discussions and lab assignments. Make-up time available.
 - c. Maintain test score average 65% - 74%.
 - c. Demonstrate good work habits in manipulative activities appropriate for entry level automotive service employees. The major points of evaluation in this area include:
 1. safety
 2. cleanliness of work areas and oneself
 3. assistance to and with others
 4. care of customer vehicles and other property
4. **Barely Passing - D** (Not recommended for trade employment)
 - a. Complete all minimum course objectives.
 - b. Participate in 60% of class discussion and lab assignments. Make-up time available.
 - c. Maintain test score average 51% - 64%.
5. **Failure - F**
 - a. Not meeting requirements for D grade in all three areas of evaluation (parts a, b, & c).
 - b. Test scores 50% or below.

Application of Lab:

Students will apply what they have learned in the classroom to perform all required NATEF tasks in the lab. Students will be issued applicable NATEF task sheets, a vehicle or equivalent training unit, and appropriate tools to perform task within a prescribed time frame.

Hours of Instruction: 220 Hours total instruction, 77 Hours classroom/ lecture, and 143 Hours lab.

Textbook or Other Support Materials (Including Software): Modern Automotive Technology, by James Duffy and workbook for Modern Automotive Technology, by James Duffy

Special Equipment: All NATEF required tools and equipment.

Other: High school must have a representative attend the advisory board meeting twice per year.

**Mt. San Jacinto Community College District
Secondary and Community College
Course Articulation Agreement
"Credit-By-Examination Criteria"**

Course Name: AUME 122: Engine Performance 1

Please describe the "credit-by-examination" method (exam, project, portfolio, etc...) required for student to receive college credit. Attach a sample if possible.

The following articulation procedure is what the auto staff agreed upon for AUME 122, Engine Performance 1. The agreement was that the ROP county office would administer the "credit-by-examination" written exam. Students who want credit for the AUME 122, Engine Performance 1, program would have to pass the ROP auto final exit exam with a minimum of a B (80% correct). The student designated as having successfully passed the exam would then have to pass the MSJC administered "hands-on competency" assessment. This hands-on assessment requires the completion of ten [10] designated AUME 122, Engine Performance 1 "hands-on tasks," which are based on NATEF standards. These would be administered by one of the MSJC AUME 122, Engine Performance 1, instructors at the MSJC campus. Students must pass these tasks with a minimum of a B [8/10].

Please describe the necessary procedure for the test to be administered (who will administer the test, where will it be taken, how will it be scored, etc...)

ROP county office has the master written exam. The county distributes the test at the end of the semesters to the auto instructors. They give the tests and the county corrects them. Students identified with the articulation would have the grades submitted to MSJC by the ROP county office.

Students passing the "credit-by-examination" written exam with a B grade will schedule an appointment with the MSJC automotive department for the "hands-on competency" assessment. MSJC will notify the ROP county office of the results of the "hands-on competency" assessment. Students meeting the credit-by-examination criteria for both the written and hands-on assessments will be eligible for course credit per the articulation agreement.