

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: SUSPENSION, STEERING & BRAKES

CODE NO.: MVM115

SEMESTER: 32 Week Program

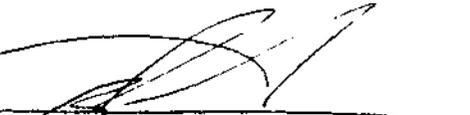
PROGRAM: MOTOR VEHICLE MECHANIC PRE-APPRENTICE PROGRAM

AUTHOR: STEVE KENT

DATE: FEBRUARY 97

PREVIOUS OUTLINE DATED: N/A

APPROVED:



DEAN

1997-03-17
DATE

TOTAL CREDITS: 6

PREREQUISITE(S): ONTARIO SECONDARY SCHOOL DIPLOMA WITH GRADE 12 ENGLISH AT GENERAL LEVEL AND 1 SENIOR LEVEL HIGH SCHOOL AUTOMOTIVE COURSE OR EQUIVALENT WORK EXPERFFINCE.

LENGTH OF COURSE: 32 WEEKS TOTAL CREDIT HOURS: 120

Suspension. Steering & Brakes

MVM115

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I. COURSE DESCRIPTION: This course will teach the student the knowledge required to inspect, test, service and diagnose the following chassis systems; wheel & tires, suspension, steering and brakes.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course the student will demonstrate the ability to:

Perform complete chassis inspection, service, repair and diagnosis using prescribed tools and equipment according to manufacturers procedures and specifications.

1) Suspension

Potential Elements of the Performance:

- 1) The student will be able to explain the fundamentals, function, composition and construction of vehicle front & rear suspension and frames.
- 2) Identify and measure common frame and body alignment.
- 3) Inspect and service a modern suspension system.
- 4) Demonstrate the removal and replacement of suspension system components and assemblies.

2) -----T'in<j

Potential Elements of the Performance:

- 1) Explain the principles of operation of modern Rack & Pinion and recirculating ball steering gears.
- 2) Disassemble, inspect and adjust manual recirculating ball steering gears using prescribed tools and specifications.
- 3) Explain the basic operating principles of a modern power steering system.
- 4) Demonstrate the disassembly, inspection, reassembly and adjustment of integral power steering gears.
- 5) Perform on vehicle tests of power steering systems using prescribed tools and equipment.

3) Wheels & Tires

Potential Elements of the Performance:

- 1) Explain the composition, construction and fundamentals of tires and wheels including types, sizes and ratings.
- 2) Perform static and dynamic wheel balancing.

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II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE
(Continued)

4) Alignment

Potential Elements of the Performance:

- 1) Define the alignment angles necessary to perform four wheel alignment, camber, caster, toe, SAI, included angle, set back and thrust angle.
- 2) Measure four wheel alignment using modern alignment equipment.
- 3) Evaluate and adjust four wheel alignment to correct vehicle handling problems.

5) Brakes

Potential Elements of the Performance:

- 1) Demonstrate a working knowledge of the fundamental principles of hydraulic brake systems.
- 2) Dismantle, inspect, service and assemble brake systems.
- 3) Explain the operating principles of power and anti-lock brakes.
- 4) Diagnose, service and repair modern power and anti-lock out boxes, Vgru'iT and Press¹.)re gaucres '
- 5) Explf-in the f..r^-"^nt als and orera*"ing privr~:r/~? of ? I >" brakes.
- 6) Identify safety related items in air brake systems. (Spring brakes)

6) Electronic Chassis Systems

Potential Elements of the Performance:

- 1) Demonstrate a working knowledge of the removal, handling and replacement of electronic suspension, steering and brake monitoring and controlling devices.

III. TOPICS:

- 1) Alignment
- 2) Suspension
- 3) Steering

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III. TOPICS:

(Continued)

- 4) Brakes
- 5) Wheels & Tires
- 6) Electronic Chassis Systems

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Text books, work books
Tools & shop equipment
Specific handouts

V. EVALUATION PROCESS/GRADING SYSTEM

Theoretical testing and performance based evaluation.

VI. SPECIAL NOTES:

Special Needs

If you are a student with special needs (eg. physical limitation, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss your needs with the instructor. Accommodations with the instructor should be discussed. Sr. Services Office, Room F12ⁿ 4, Ext. 493⁷¹ ~ 491 that support services can be arranged for you.

Retention of Course Outlines

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

Disclaimer for Meeting the Needs of the Learner

Substitute Course Information is available at the Registrar's Office

Any Other Special Notes appropriate to your course

VII. PRIOR LEARNING ASSESSMENT

Students who wish to apply for advanced credit in the course should consult the instructor. Credit for prior learning will be given upon successful completion of the following: