COURSE OUTLINE: AST811 - WORK PRACTICES

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Course Code: Title	AST811: WORK PRACTICES
Program Number: Name	6069: AUTO SERV TN LEVEL 3
Department:	MOTIVE POWER APPRENTICESHIP
Academic Year:	2024-2025
Course Description:	Upon successful completion the apprentice will have the ability to explain the operating principles, perform inspection, test and diagnose climate control system according to manufacturers standards.The apprentice will have the ability to explain the purpose and construction of body trim and glass components and perform necessary repairs following manufacturers` recommendations.
Total Credits:	4
Hours/Week:	4
Total Hours:	30
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	A+ 90 - 100% 4.00 A 80 - 89% B 70 - 79% 3.00 C 60 - 69% 2.00 D 50 - 59% 1.00 F (Fail) 49% and below 0.00

CR (Credit) Credit for diploma requirements has been awarded.
S Satisfactory achievement in field /clinical placement or non-graded subject area.
U Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR Grade not reported to Registrar`s office.
W Student has withdrawn from the course without academic penalty.

Books and Required Resources:

Automotive technology a systems approach by Erjavec Restoule
Publisher: Cengage Learning Canada Edition: 4th Canadian Edition

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
Diagnose and Repair Climate Control Systems	Explain the principles of compressor control systems. - Drivability controls - coolant temperature sensor - voltage load shedding - RPM - throttle position sensor - power steering pressure - compressor protection - ambient temp sensor - low and high pressure cutout - compressor temperature sensor - compressor rpm sensor - superheat circuit - pressure relief valve - fan controls - electric and viscous drive - pressure and temperature - evaporator temperature controls - thermostats and evaporator temperature sensors - pressure cycling - variable displacement compressors - suction throttle, evaporator pressure regulator systems Identify the components of compressor control systems. - drivability controls - compressor protection - evaporator temperature controls - STV, EPR systems Explain the operating principles of automatic climate control systems. - fully automatic, semi-automatic, manual control - airflow control - blower control - mode control - control units - PCM - BCM

	- control head - programmer - input sensors - ambient - in-car - coolant/heater core - sunload - driver - outputs - blend door motor - temperature and coolant flow controls - mode door motors - blower control unit - vacuum circuits Describe inspection and testing procedures for climate control systems. - climate controls - visual inspection - retrieving data and trouble codes - determine faults without trouble codes - diagnose temperature and air flow - refrigeration system - visual inspection of all AC components - diagnosis using gauges - diagnose failed compressors and clutches - symptoms of hydraulic lock. - recognition of oil starvation - testing belt tensioners - check for low voltage - leakage repairs - flushing and filtering - de-odorizing smells from air plenums Perform inspection and testing procedures for climate control systems performance tests. - climate controls - visual inspection - retrieving data and trouble codes - determine faults without trouble codes - diagnose temperature and air flow problems - movement and actuator performance - refrigeration system - visual inspection - diagnosis using gauges - diagnosis of failed compressors and clutches - replace clutches on compressors - repair lines and hoses - leakage repairs by identifying leaky components - flushing and filtering contaminated components - de-odorizing smells from air plenums

Course Outcome 2	Learning Objectives for Course Outcome 2
Body and Trim	Explain the purpose of body and trim components. - weather stripping - windows and regulators - windshield/rear glass integrity - headlamp aiming - interior and exterior trim Identify body and trim components. - weather stripping - windows and regulators - windshield sealants - headlamps - interior and exterior trim Describe inspection, testing and repair procedures to body and trim components. - aim headlamp - fit and leaks - water dust - noise location and repair - squeaks - rattles - wind

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments	10%
Shop	50%
Tests	40%

Date: November 12, 2024

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.