



Program Planning Guide

Automotive Systems Technology, Electrical Vehicle Track, Diploma (D60160EV)

Program Length: 3 semesters

Program Sites: Lee Main Campus - Day Program

Career Pathway Options: Associate in Applied Science Degree in Automotive Systems (Electrical Vehicle Track) Technology; Diploma in Automotive Systems (Electrical Vehicle) Technology Diploma

Suggested Course Schedule		Class	Lab	Work	Credits	Notes:
1st Semester (fall)						
ATT 115	Green Trans Safety & Service	1	2	0	2	
TRN 110	Intro to Transport Tech	1	2	0	2	
TRN 120	Basic Transp Electricity	4	3	0	5	
TRN 170	PC Skills for Transp	1	2	0	2	
Math Requirement					3/4	
	Total Semester Hours				14/15	
2nd Semester (spring)						
AUT 141	Suspension & Steering Sys	2	3	0	3	
AUT 141A	Suspension & Steering Lab	0	3	0	1	
AUT 163	Adv Auto Electricity	2	3	0	3	
AUT 163A	Adv Auto Electricity Lab	0	3	0	1	
TRN 130	Intro to Sustainable Transp.	2	2	0	3	
English requirement		3	0	0	3	
	Total Semester Hours	9	14	0	14	
3rd Semester (summer)						
ATT 125	Hybrid-Electric Transportation	2	4	0	4	
TRN 140	Transp Climate Control	1	2	0	2	
TRN 140A	Transp Climate Cont Lab	1	2	0	2	
	Total Semester Hours	4	8	0	8	
Total Semester Credit Hours Required for Graduation: 36						

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Course Descriptions**ATT 115 Green Trans Safety & Service**

This course covers workplace safety, hazardous material and environmental regulation relevant to electric, hybrid and alternative fueled vehicles. Topics include safety of high voltage vehicle systems, gaseous fuel systems and alternative liquid fuels. Upon completion, students should be able to demonstrate safe work practices, utilize appropriate shop tools and explain government regulations associated with alternative transportation.

ATT 125 Hybrid-Electric Transportation

Prerequisite: TRN 120

This course covers the theory and operation of hybrid-electric drive vehicles. Topics include maintenance, diagnostics, repair and safety procedures for electrically propelled and hybrid vehicles. Upon completion, students should be able to perform diagnostics, maintenance and repair hybrid-electric drive vehicles.

AUT 141 Suspension & Steering Sys

This course covers principles of operation, types, and diagnosis/repair of suspension and steering systems to include steering geometry. Topics include manual and power steering systems and standard and electronically controlled suspension and steering systems. Upon completion, students should be able to service and repair steering and suspension components, check and adjust alignment angles, repair tires, and balance wheels.

AUT 141A Suspension & Steering Lab

Corequisite: Take AUT 141

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include manual and power steering systems and standard and electronically controlled suspension and steering systems. Upon completion, students should be able to service and repair steering and suspension components, check and adjust alignment angles, repair tires, and balance wheels.

AUT 163 Adv Auto Electricity

Prerequisite: Take TRN 120

This course covers electronic theory, wiring diagrams, test equipment, and diagnosis, repair, and replacement of electronics, lighting, gauges, horn, wiper, accessories, and body modules. Topics include networking and module communication, circuit construction, wiring diagrams, circuit testing, and troubleshooting. Upon completion, students should be able to properly use wiring diagrams, diagnose, test, and repair wiring, lighting, gauges, accessories, modules, and electronic concerns.

AUT 163A Adv Auto Electricity Lab

Corequisite: Take AUT 163

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include networking and module communication, circuit construction, wiring diagrams, circuit testing, troubleshooting and emerging electrical/electronic systems technologies. Upon completion, students should be able to properly use wiring diagrams, diagnose, test, and repair wiring, lighting, gauges, accessories, modules, and electronic concerns.

MAT 110 Math Measurement & Literacy

This course provides an activity-based approach that develops measurement skills and mathematical literacy using technology to solve problems for non-math intensive programs. Topics include unit conversions and estimation within a variety of measurement systems; ratio and proportion; basic geometric concepts; financial literacy; and statistics including measures of central tendency, dispersion, and charting of data. Upon completion, students should be able to demonstrate the use of mathematics and technology to solve practical problems, and to analyze and communicate results.

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PHY 110 Conceptual Physics

This course provides a conceptually-based exposure to the fundamental principles and processes of the physical world. Topics include basic concepts of motion, forces, energy, heat, electricity, magnetism, and the structure of matter and the universe. Upon completion, students should be able to describe examples and applications of the principles studied. This course has been approved for transfer under the CAA/ICAA as a general education course in Natural Science.

PHY 110A Conceptual Physics Lab

Corequisite: Take PHY 110

This course is a laboratory for PHY 110. Emphasis is placed on laboratory experiences that enhance materials presented in PHY 110. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in PHY 110. This course has been approved for transfer under the CAA/ICAA as a general education course in Natural Science.

TRN 110 Intro to Transport Tech

This course covers workplace safety, hazardous materials, environmental regulations, hand tools, service information, basic concepts, vehicle systems, and common transportation industry terminology. Topics include familiarization with major vehicle systems, proper use of various hand and power tools, material safety data sheets, and personal protective equipment. Upon completion, students should be able to demonstrate appropriate safety procedures, identify and use basic shop tools, and describe government regulations regarding transportation repair facilities.

TRN 120 Basic Transp Electricity

This course covers basic electrical theory, wiring diagrams, test equipment, and diagnosis, repair and replacement of batteries, starters, and alternators. Topics include Ohm's Law, circuit construction, wiring diagrams, circuit testing, and basic troubleshooting. Upon completion, students should be able to properly use wiring diagrams, diagnose, test, and repair basic wiring, battery, starting, charging, and electrical concerns.

TRN 130 Intro to Sustainable Transp

This course provides an overview of alternative fuels and alternative fuel vehicles. Topics include composition and use of alternative fuels including compressed natural gas, biodiesel, ethanol, hydrogen, and synthetic fuels, hybrid/electric, and vehicles using alternative fuels. Upon completion, students should be able to identify alternative fuel vehicles, explain how each alternative fuel delivery system operates, and perform minor repairs.

TRN 140 Transp Climate Control

This course covers the theory of refrigeration and heating, electrical/electronic/pneumatic controls, and diagnosis and repair of climate control systems. Topics include diagnosis and repair of climate control components and systems, recovery/recycling of refrigerants, and safety and environmental regulations. Upon completion, students should be able to diagnose and repair vehicle climate control systems.

TRN 140A Transp Climate Control Lab

This course provides experiences for enhancing student skills in the diagnosis and repair of transportation climate control systems. Emphasis is placed on reclaiming, recovery, recharging, leak detection, climate control components, diagnosis, air conditioning equipment, tools and safety. Upon completion, students should be able to describe the operation, diagnose, and safely service climate control systems using appropriate tools, equipment, and service information.