

# AUTOMOTIVE TRANSPORTATION TECH (ATT)

## **ATT 180 Alternative Vehicle Fundamentals & Safety (2 Credits)**

30 lecture, 22.5 lab, 2 total contact hours

In this course, students will learn about various alternative energy vehicles used in the transportation industry. Topics of study will include the history and types of alternative energy used in the transportation industry, electric vehicle (EV) and component identifications, and the safety standards and practices needed when working around vehicles and components. Students will also explore current trends and myths surrounding this rapidly evolving sector of vehicles. Level I Prerequisite: Academic Reading and Writing Levels of 6

## **ATT 280 Introduction to Electric Vehicles (EV) (4 Credits)**

45 lecture, 60 lab, 4 total contact hours

In this course, students will learn how to service and maintain electric vehicles (EVs) according to the manufacturers' recommendations. Topics of study will include EV component locations, system identifications, and the safety standards and practices needed when servicing vehicles and components. Students will also explore the specific specialty tooling, data collection applications, and diagnostic tooling needed to perform services in a shop environment. Level I Prerequisite: Academic Reading and Writing Levels of 6; ASV 131 minimum grade "C"

## **ATT 282 Electric Vehicle (EV) Energy Management (4 Credits)**

45 lecture, 60 lab, 4 total contact hours

In this course, students will learn how to service and maintain electric vehicle (EV) batteries and on-board charging systems according to the manufacturers' recommendations. Topics of study will include EV battery subsystems and battery charging component and wiring locations. In addition, battery heating and cooling system identifications as well as safety standards and practices for EV battery service will be addressed. Students will also explore specialty battery tooling, battery management system (BMS) data, and the diagnostic tooling needed to perform battery diagnostics and removal in a shop environment. Level I Prerequisite: Academic Reading and Writing Levels of 6; ASV 256 and ATT 280, minimum grade "C"

## **ATT 284 Electric Vehicle (EV) Drivelines & Chassis (4 Credits)**

45 lecture, 60 lab, 4 total contact hours

In this course, students will learn how to service and maintain electric vehicle (EV) drivelines and HVAC systems as well as follow manufacturers' recommendations to align EV chassis. Topics of study will include, but will not be limited to, motors used in EV drive systems, EV gearbox service, as well as passenger cabin heating and cooling system identification and maintenance. Safety standards and practices for servicing EV drivelines and HVAC systems will also be addressed as well as specialty service tooling and suggested maintenance intervals. Level I Prerequisite: Academic Reading and Writing Levels of 6; ATT 282 minimum grade "C"

## **ATT 286 Electric Vehicle (EV) Dynamometer Testing (2 Credits)**

30 lecture, 22.5 lab, 2 total contact hours

In this course, students will learn how to use automotive and motorcycle chassis dynamometers to collect vehicle data from electric vehicles (EVs). Topics of study will include, but will not be limited to, diagnosing EV drivability issues, developing custom tests to capture miles per gallon of gasoline-equivalent (MPGe) data, and identifying safety standards and practices for chassis dynamometers with EVs. Students will also use dynamometer tests to assess EV battery consumption and degradation values associated with varied weather, temperature, and driving style. Level I Prerequisite: Academic Reading and Writing Levels of 6; ATT 282 minimum grade "C"