

Spokane Community College

Course Learning Outcomes and Outline

Course Title: Theory of Electrical & Electronics

Prefix and Course Number: AUTO 115

Course Learning Outcomes:

By the end of this course, a student should be able to:

- Know and understand basic electricity fundamentals.
- Understand Ampere, Volt, and Ohms and how they are related.
- Identifying electrical components.
- Identify and understand specific electrical circuits and control units.
- List common electrical & electronic components found in today's vehicles.

Course Outline:

- **Electrical Fundamentals including, Theory's, Laws, Types of Circuits, Circuit Testers and Meters.**
 - The Meaning of Series, Parallel and Series Parallel Circuits
 - Ohms Law & Watts Law
 - Connecting & Reading a Digital Multi Meter and Oscilloscope
- **Automotive Wiring, Repair, Capacitance, Capacitors, Magnetism and Networking Communications.**
 - Types and Size of Wire and Where to Use
 - Reading Wiring Schematics
 - Reading Wiring Diagrams
 - Magnetism and its Relationship with Conductors
 - Theory of Communication and how Computers Communicate
- **Batteries, Starters, and Alternators.**
 - Theory of Operation. Why they Work & How they Work.
- **Driver Information, Navigation, Safety, Comfort and Convenience including Audio, Cruise Control and Autonomous Vehicles.**
 - Instrument Cluster, Warning Lights & Dash Lights
 - Display, Back up Camera, Power seats, Power Windows & Air Bags
 - Heated & Cooled Seats, Remote audio controls & Cruise Control Switches
- **Electric and Plug-In Hybrid Electric Vehicles.**
 - Recharging the High-Voltage Battery