**Minnesota State**
Community and Technical College

# HYEV2601 - Advanced Automotive Electrical Systems

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| Credits: | 3 (3/0/0) |
| Description: | This course is designed for students to understand basic electrical terms, use of a multi-meter, use of an oscilloscope, and diagnosis and repair of various network systems used on today's vehicles. This course is a refresher to prepare students for working on complex high-voltage systems and networks. |
| Prerequisites: | • Graduated from an automotive technology program or have at least 5 years working as an automotive technician. |
| Corequisites: | |
| Pre/Corequisites*: | |
| Competencies: | 1. Exhibit all safety precautions.<br>2. Demonstrate understanding and principals of Ohm's Law in applications of both DC and AC circuits.<br>3. Demonstrate the ability to calculate watts, ohms, amps and volts.<br>4. Demonstrate the ability to use a digital volt ohm meter and the settings on the meter.<br>5. Demonstrate the ability to check resistance, voltage, amp draw and voltage drop on an electrical system.<br>6. Demonstrate the ability to use service information and complex wiring diagrams to properly diagnose an electrical circuit.<br>7. Demonstrate the ability to check resistance, voltage, amp draw and voltage drop on an electrical system.<br>8. Perform electrical tests setting up and using a multi-channel oscilloscope.<br>9. Demonstrate knowledge of data network systems.<br>10. Perform diagnosis and repairs to CAN bus (Controller Area Network) and other network systems. |
| MnTC goal areas: | None |

*Can be taking as a Prerequisite or Corequisite.