Automotive Electrical Components II

Course Credit	1.0
Grade Levels	10-12
Prerequisites	Automotive Electrical Components I

Automotive Electrical Components II is designed to equip students with service knowledge and skills regarding safety, electrical, and electronics systems. Standards are designed to equip students to diagnose and repair electrical systems related to engine performance. This course incorporates personal and environmental safety practices associated with clothing and eye protection, hand tools, power equipment, ventilation, and the handling, storage, and disposal of chemicals and materials in accordance with local, state, and federal safety and environmental regulations.

Content standards are written to meet Automotive Service Excellence (ASE) Education Foundation requirements, which also specify task lists, program hours, and safety standards.

Career and Technical Student Organizations are integral, co-curricular components of each career and technical education course. These organizations enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and access opportunities for personal and professional growth. Students in the Transportation, Distribution and Logistics career cluster affiliate with SkillsUSA.

Foundational standards, shown in the table below, are an important part of every course. Through these standards, students learn and apply safety concepts, explore career opportunities and requirements, practice the skills needed to succeed in the workplace, develop leadership qualities and take advantage of the opportunities afforded by Career and Technical Student Organizations (CTSOs), and learn and practice essential digital literacy skills. The foundational standards are to be incorporated throughout the course.

Each foundational standard completes the stem *"**Students will**..."*

Foundational Standards

1. Incorporate safety procedures in handling, operating, and maintaining tools and machinery; handling materials; utilizing personal protective equipment; maintaining a safe work area; and handling hazardous materials and forces.
2. Demonstrate effective workplace and employability skills, including communication, awareness of diversity, positive work ethic, problem-solving, time management, and teamwork.
3. Explore the range of careers available in the field and investigate their educational requirements, and demonstrate job-seeking skills including resume-writing and interviewing.
4. Advocate and practice safe, legal, responsible, and ethical use of information and technology tools specific to the industry pathway.
5. Participate in a Career and Technical Student Organization (CTSO) to increase knowledge and skills and to enhance leadership and teamwork.
6. Apply literacy, mathematical, and scientific principles and precision measurements when diagnosing problems and making repairs.
7. Work independently, collaboratively, and in teams to explore concerns, find causes, and take appropriate action by applying principles of STEM.

AUTOMOTIVE ELECTRICAL COMPONENTS II
CONTENT STANDARDS

Each content standard completes the stem *"**Students will**…"*

Charging System Electrical Accessories	1. Diagnose charging system problems for causes of undercharge, no-charge, or overcharge condition. a. Diagnose the causes of brighter-than-normal, intermittent, dim, or no light operation. 2. Inspect and test gauges and gauge sending units for causes of abnormal readings to determine needed action. 3. Diagnose the causes of incorrect operation of warning devices and other driver information systems to determine needed action.
Advanced Electrical	4. Assess the operation of comfort and convenience accessories and related circuits to determine needed repairs. *Examples: power window, power seats, pedal height, power locks, truck locks, remote start, moonroof, sun roof, sun shade, remote keyless entry, voice activation, steering wheel controls, back-up camera, park assist, cruise control, auto-dimming headlamps* 5. Assess the operation of security and anti-theft systems and related circuits to determine needed repairs. *Examples: theft deterrent, door locks, remote keyless entry, remote start, starter or fuel disable* 6. Assess the operation of entertainment components and related circuits to determine needed repairs. *Examples: radio, DVD, remote CD changer, navigation, amplifiers, speakers, antennas, voice-activated accessories* 7. Inspect operation of safety systems and related circuits to determine needed repairs. *Examples: horn, airbags, seat belt pretensioners, occupant classification, wipers, washers, speed control and collision avoidance, heads-up display, park assist, back-up camera* 8. Assess body electronic systems circuits using a scan tool and check for module communication errors (data bus systems) to determine needed action. 9. Describe the process for software transfer, software updates, or reprogramming of electronic modules.