

Discipline: Agriculture	Sub-discipline: Mechanized Agriculture
General Course Title: Power Equipment Electrical Systems	Min. Units: 3 Semester
Proposed Suffix: L	
<p>Course Description: This course involves the fundamentals of electricity with applications to current power equipment electrical systems. Theory and service procedures to include the following systems: Starting, charging, lighting and accessories. Laboratory required.</p>	
Required Prerequisites or Co-Requisites ¹	
Advisories/Recommended Preparation ²	
<p>Course Objectives: <i>At the conclusion of this course, the student should be able to:</i></p> <ul style="list-style-type: none"> • Properly use diagnostic tools related to the analysis and repair of power equipment electrical systems • Construct and analyze electrical circuits from schematic diagrams • Develop an understanding of the design, construction, theory, operating principles and servicing procedures of starting, charging, lighting and accessory circuits. • Master competency in servicing wiring harnesses and electrical connections • Distinguish between open circuits, shorted circuits and short to ground in electrical circuit systems • Demonstrate the ability to troubleshoot electrical components and circuits • Demonstrate ability to communicate and work cooperatively with others 	
<p>Course Content:</p> <ol style="list-style-type: none"> 1. Theory of Electricity <ol style="list-style-type: none"> a. Basic electrical circuits b. Current, voltage, resistance c. Magnetism, electromagnetism d. OHMS law 2. Electrical Diagnostic Equipment <ol style="list-style-type: none"> a. OHM meter b. Volt meter c. Amp meter d. Multimeter testing equipment 3. Starting Systems <ol style="list-style-type: none"> a. Theory of operation b. Battery testing, servicing, changing c. Starter testing, repair, replacement d. Solenoids switches 4. Charging Systems <ol style="list-style-type: none"> a. Theory of operation b. Generator, alternator and regulators c. On vehicle testing procedures d. Wire harnesses e. Troubleshooting <p>Power Equipment Electrical Systems (Content Continued)</p> <ol style="list-style-type: none"> 5. Lighting systems 	

¹ Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course.

² Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling.

<ul style="list-style-type: none"> a. Lighting circuits b. Circuit breakers c. Relays 	
<ul style="list-style-type: none"> 6. Accessory Circuits <ul style="list-style-type: none"> a. Electrical schematic and troubleshooting b. Symbols c. Connectors d. Relays 	
<p>Laboratory Activities: Individual Laboratory Activities are designed to support course objectives.</p>	
<p>Methods of Evaluation: Lecture Comprehensive Quizzes and Exams Written Critical Thinking Scenarios Problem Analysis and Solution Research and Term Papers</p>	<p>Methods of Evaluation: Laboratory Laboratory Skill Validation by Observation Laboratory Reports Diagnostics and Problem Solving Laboratory Skill Practicum Certification Exams</p>
<p>Typical Textbooks, Manuals, or Other Support Materials Electrical and Electronic Systems, John Deere</p>	
<p>Statewide Articulation: UCD-ABT 142, other universities as lower division elective</p>	
<p>FDRG Lead Signature: _____ Date: _____</p>	
<p>Mark E. Bender, PhD CSU Stanislaus</p>	
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