COURSE OUTLINE

DEPT. TRAN  COURSE NUMBER: 1111

NUMBER OF CREDITS: 3  Lecture: 1 Lab: 2  OJT: 0

Course Title:
Electrical Fundamentals

Catalog Description:
Electrical Fundamentals defines the basic fundamentals of electricity and electronics also identifying sources of electricity. Circuits, magnetism, resistance, coils, capacitance, instruments, diodes, and solid-state devices will be introduced. Emphasis is placed on the testing and repair/replacement of the electrical systems, starter motors, and alternators. Students will identify parts, system operation, and component testing.

Prerequisites or Necessary Entry Skills/Knowledge:
None

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
☐ Goal 1: Communication: By meeting the following competencies:
☐ Goal 2: Critical Thinking: By meeting the following competencies:
☐ Goal 3: Natural Sciences: By meeting the following competencies:
☐ Goal 4: Mathematics/Logical Reasoning: By meeting the following competencies:
☐ Goal 5: History and the Social and Behavioral Sciences: By meeting the following competencies:
☐ Goal 6: The Humanities and Fine Arts: By meeting the following competencies:
☐ Goal 7: Human Diversity: By meeting the following competencies:
☐ Goal 8: Global Perspective: By meeting the following competencies:
☐ Goal 9: Ethical and Civic Responsibility: By meeting the following competencies:
☐ Goal 10: People and the Environment: By meeting the following competencies:

Topics to be Covered
Basic Electrical Fundamentals
Electrical Systems
Solid-state systems
Alternator and starter rebuild and testing
Testing and repair of electrical systems
**Student Learning Outcomes**

| Demonstrate knowledge of electrical series parallel and combination circuits |
| Demonstrate proper use of digital multimeter |
| Inspect and test fusible links, circuit breakers, and relays |
| Perform solder repair of electrical wire |
| Inspect and test switches, connectors, and wires |
| Comply with personal and environmental safety practices associated with clothing, eye protection, hand tools, power equipment, and proper ventilation |
| Demonstrate safe handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations |

*The required outcomes follow the Auto Service Technician (AST) model of the Board of the National Institute for Automotive Service Excellence (ASE)*

**Is this course part of a transfer pathway:**  Yes ☐  No ☒

Revised Date: 04/2022