

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

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