

Minnesota State College Southeast

AUTO 1236: Starting and Charging Systems

A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 2

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course teaches basis theory of starting and charging systems. It includes part and component identification as well as testing and troubleshooting systems. Emphasis will be placed on starting and charging circuits. The following TASKS are required by NATEF (National Automotive Technician Education Foundation). NATEF requires that 98% of P-1's 80%, of P-2's, and 50% of P-3's be completed during the course. (Prerequisites: AUTO1105, AUTO1106, AUTO1206, or instructor approval) (2 Credits: 2 lecture/0 lab)

B. COURSE EFFECTIVE DATES: 10/05/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Safety Requirements
2. Battery Diagnosis and Service
3. Starting System Diagnosis and Repair
4. Charging System Diagnosis and Repair

D. LEARNING OUTCOMES (General)

1. Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.
2. Perform battery state-of-charge test; determine necessary action. P-1
3. Perform battery capacity test; confirm proper battery capacity for vehicle application; determine necessary action. P-1
4. Maintain or restore electronic memory functions. P-1
5. Inspect, clean, fill, and replace battery. P-2
6. Perform slow/fast battery charge. P-2
7. Inspect and clean battery cables, connectors, clamps, and hold-downs; repair or replace as needed. P-1
8. Start a vehicle using jumper cables and a battery or auxiliary power supply. P-1
9. Perform starter current draw tests; determine necessary action. P-1
10. Perform starter circuit voltage drop tests; determine necessary action. P-1
11. Inspect and test starter relays and solenoids; determine necessary action. P-2
12. Remove and install starter in a vehicle. P-1
13. Inspect and test switches, connectors, and wires of starter control circuits; perform necessary action. P-2
14. Differentiate between electrical and engine mechanical problems that cause a slow-crank or no-crank condition. P-2
15. Perform charging system output test; determine necessary action. P-1
16. Diagnose charging system for the cause of undercharge, no-charge, and overcharge conditions. P-1
17. Inspect, adjust, or replace generator (alternator) drive belts, pulleys, and tensioners; check pulley and belt alignment. P-2
18. Remove, inspect, and install generator (alternator). P-1
19. Perform charging circuit voltage drop tests; determine necessary action. P-1
20. Describe electrical safety procedures
21. Complete mid-term exam
22. Complete final exam

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted