SAN JUAN COLLEGE
Success Matters

MCAP-120-ELECTRICAL SYSTEMS 6 CREDITS

SYLLABUS

CATALOG DESCRIPTION

A study of the electrical and electronic systems found on Chrysler FCA vehicles. Emphasis is on basic circuitry, starting systems, charging systems, ignition systems, diagnosis and servicing the electrical components on current model Chrysler FCA vehicles. On-board computer networks found on modern Chrysler FCA vehicles, proper techniques for isolating, diagnosing and repairing complex automotive computer networks. Theory and operation of key hybrid vehicle systems and components. Instruction will include test equipment related to ignition, electrical, and electronic devices. Personal safety will be emphasized.

Corequisite: MCAP-110

Semester Offered: Fall

COMMON STUDENT LEARNING OUTCOMES

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in…

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

GENERAL LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to…

1. Complete 100% of NATEF priority 1 tasks.
2. Complete 85% of NATEF priority 2 tasks.
3. Complete 75% of NATEF priority 3 tasks.

COURSE LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to…

1. Work with automotive electrical systems utilizing the manufacturers' recommended safety procedures.
2. Demonstrate Knowledge of electrical fundamentals by properly using an amp, volt and ohmmeter (digital & analog).
3. Diagnose circuits which have conditions such as: shorts, opens, and grounds.
4. Inspect electrical connections and repair them using accepted manufacturers' procedures.
5. Diagnose and repair various electrical circuits and components.
6. Diagnose and repair electronic level controls.
7. Test switches, fuses, and circuit breakers.
8. Remove and replace fuse block & associated assemblies.
9. Test a turn signal circuit.
10. Test instrument gauges.
11. Test the specific gravity of a battery.
12. Perform a load test on a battery.
13. Properly charge a battery.
14. Perform a starter amp draw test.
15. Perform a voltage drop test on a starter system.
16. Perform a charging system output test.
17. Repair a no charge condition.
18. Remove and replace electronic control units.
19. Diagnose and repair solid-state ignition systems.
20. Demonstrate the use of an oscilloscope.
21. Diagnose electrical symptoms related to faulty network circuits.
22. Diagnose computer system trouble codes related to computer communication