J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: AUT 229 **Credits:** 3

Course Title: Applied Automotive Electronic Guidance and Safety Control Systems

Course Description: Covers advanced automotive electronic systems, including GPS navigation, communication, and guidance control systems. Addresses the theory, function, operation, diagnostic procedures, and maintenance of each system. Emphasizes safety. Prerequisite: AUT 129. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

General Course Purpose: The purpose of this course is to provide an in-depth study of the advanced systems used for self-driving vehicles. Automotive students entering the workforce need to understand and be able to diagnose complex, integrated vehicle safety systems in which vehicles can operate autonomously. This course may be used, with program head approval, as an elective for the Automotive Technology AAS degree, replacing a cooperative education course.

Course Prerequisites and Co-requisites:
Prerequisite: AUT 129

Student Learning Outcomes:
Upon completing the course, the student will be able to
a. Demonstrate the use of appropriate safety procedures in all areas of electronic guidance control system maintenance;
b. Diagnose and repair electronic guidance control system faults;
c. Identify the various electronic guidance control components and their relationship to electronic guidance control operation; and
d. Identify and describe different types of electronic guidance control systems.

Major Topics to Be Included:
a. Introduction to electronic guidance control systems
    1. History
    2. Introduction to GPS and GIS
    3. Introduction to satellite communications
    4. Types of vehicles manufactured with guidance control systems
b. GPS navigation systems
    1. System operation
    2. System components
    3. System diagnostics and repair
c. Radio and satellite communications
    1. System operation
    2. System components
    3. System diagnostics and repair
d. Guidance control systems
    1. System operation
    2. System components
    3. System diagnostics and repair

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