

AUT 271 : AUTOMOTIVE CONTROLLER SYSTEMS II

Transcript title

Auto Controller Systems II

Credits

4

Grading mode

Standard letter grades

Total contact hours

80

Lecture hours

20

Lab hours

60

Prerequisites

AUT 206.

Recommended preparation

AUT 270.

Course Description

Vehicle performance is enhanced by a variety of methods. This course examines various methods of performance enhancements of automotive drive systems with major emphasis on electronic programming. Manufacturer scan tools will be included with vehicle testing.

Course learning outcomes

1. Describe vehicle performance before and after vehicle hardware and software modification.
2. Calculate volumetric efficiency of operational vehicles.
3. Perform on board diagnostics, analyze the results, and report the findings.
4. Perform vehicle dynamometer operation.
5. Describe and perform vehicle reprogramming for performance and emissions.
6. Communicate technical information verbally and in writing.
7. Describe and practice safety procedures while working in an automotive shop environment.

Content outline

1. Class intro/review syllabus
2. Dyno basics
3. Tuning platforms
4. Engine types
5. Bore vs. stroke
6. Cylinder head types
7. Pistons, rods
8. Crank types

9. Induction types
10. Engine additives
11. Drivetrain types
12. Fuel types
13. Fuel delivery types
14. Diesel fuel delivery types
15. Horsepower vs. torque
16. Engine management programs
17. Types of racing
18. Start tuning checklist
19. Troubleshooting
20. Common engine failures and how to avoid them

Required materials

Required textbook and special gear, see syllabus for details.