NC AU291: ENGINE PERFORMANCE ENHANCEMENTS AND TUNING

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2025
Credits:	0
Total Contact Hours:	90
Lecture Hours :	36
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	72
Total Student Learning Hours:	162
Strongly Recommended:	ENGL C1000, MATH 144, and AUTO 148 or AUTO 168 or NC AU148 or consent of the department.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Non-Credit Course

Catalog Course Description

This class covers the engine performance enhancements available for automobiles, light trucks and motorcycles. The subject areas covered include stand-alone engine management systems, fuel systems, turbochargers, superchargers, nitrous oxide, ignition systems, and the use of the chassis dynamometer as a tuning tool. This course is the noncredit equivalent of credit course AUTO 291. 36 lecture hours, 54 lab hours.

Course Objectives

- identify and explain the various methods of forced induction used on automotive engines
- describe in detail the various methods for determining appropriate fuel delivery & spark timing strategies
- perform a complete performance analysis of an automotive engine using the chassis dynamometer
- explain the operation of a stand-alone engine management system
- determine the proper after-market ignition system for a given application
- determine the proper fuel system enhancements necessary for increased performance and/or economy
- analyze and tune fuel delivery & spark timing for maximum performance and/or economy

Major Course Content

1. Forced Induction Systems
2. Stand-alone Engine Management Systems
3. Chassis Dynamometer Operation and Analysis
4. After-market Intake and Exhaust Systems
5. Fuel Delivery and Ignition Performance Adjustments

Lab Content

1. Forced Induction Systems
2. Stand-alone Engine Management Systems
3. Chassis Dynamometer Operation and Analysis
4. After-market Intake and Exhaust Systems
5. Fuel Delivery and Ignition Performance Adjustments

Suggested Reading Other Than Required Textbook

Automobile/light-truck periodicals with emphasis on engine performance enhancements and tuning.

Examples of Required Writing Assignments

Weekly reading of periodicals and summary, review, and analysis of article contained therein.

Examples of Outside Assignments

Over a 16 week presentation of the course three hours per week are required for each unit of credit. Two hours of independent work done out of class are required for each hour of lecture. Students will be required to complete the following types of assignments outside of the regular class time:
Study Solve problems Use the computer Read required materials Perform research Answer questions

Instruction Type(s)

Lab, Lecture, Online Education Lecture