

AFV 238

Hybrid Vehicles

Instructor: Anthony Rish

Spring Semester 2006

3.00 Credits

Office hours: (Posted on my office door, room 126)

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Note: Students with learning or physical disabilities are encouraged to contact Toni Page, in the Student Health Office, so we can support student's needs, and optimize the learning process. Please keep me notified of any special circumstances that may require exception to class guidelines in this syllabus.

Course Description: This course is designed to familiarize students with the operation, safety, and scheduled maintenance of different Hybrid Vehicles. Focus of Lecture will include:

Review of Electrical Theory, including:

Ohms Law

Series-parallel D.C. Circuits

Introduction to A.C. Circuits

Analysis of Series-Parallel Circuits with multiple power sources

4 Cycle engine and exhaust gas theory review

Introduction to Electric Motors, including:

Series Wound

Shunt Wound

A.C. Synchronous and Permanent Magnet Synchronous Electric Motors

Hybrid Safety and Emergency responder familiarization

Hybrid Battery technology and safety

Hybrid Vehicle class designations

Introduction to current production Hybrid Vehicles

Basic Hybrid operation and Nomograph familiarization

General Hybrid maintenance procedures

Purpose: To give students a basic understanding of current Hybrid Vehicle technology and provide cautions about possible pitfalls of hybrid service. *NOTE: *Completion of this class only prepares students for Manufacturers' and Future A.S.E. certification tests.*

Only Toyota Students will receive credit for

Toyota Course 256, "Toyota Hybrids-General Service and Maintenance".

Required text for this class: **ALL HYBRID STUDENTS** will be using the Toyota Hybrid Service Textbook for Course 256, Available at the Bookstore on this (North Haven) campus.

Other Required Materials:

1. **Automotive Uniforms with name patch or sponsorship logo-** this generally means a button down shirt and blue or black “chino” pants. T-shirts are only acceptable if it has your name and dealer, or Toyota/GM logo on it.
2. **Safety glasses-** Students without safety glasses will not be allowed to participate in Laboratory assignments, or any class projects that require any tools.
3. **Tools-** All students are required to have tools listed in the Automotive Student Information Packet (Tool page is included in this syllabus).
4. **High Voltage Gloves-** 1000 Volt Electrician’s gloves are standard service equipment for service on all current makes and models of Hybrid Vehicles.
5. **Notebooks-** The majority of information that you will be tested on in this course is in lecture format, and good note taking will be needed for studying. Success on Mid-term and Final Exams will depend on the quality of your lecture notes.
6. **Other Training Materials-** Lab sheets and other study materials will be given out during the semester. Some labs will be recorded by the students during certain procedures, and should be typed and handed in by their deadlines, or late with the expectation of a reduced grade.
7. **Calculators will be required for electrical circuit analysis, and gear ratio problems.**

Grading and performance: Grading will be based on the following:

- Class participation
- Preparation
- Level of improvement
- Lab reports
- Mid-Term and Final Exam grades based on lecture notes
- Periodic Quizzes
- Homework, research projects.

Extra Credit: I will always consider Extra credit work assignments, or Volunteer work to boost Exam or Final grade percentages.

*See next page for other class policies

Cell Phones: If a student's cell phone is distracting to me or classmates during class, a Five Page Paper will be assigned to the offending phone's owner with a topic of my choice. The second time the same student's phone rings during Class or Lab, an assignment will be given to the whole class.

There are always exceptions for emergencies, please keep me informed.

If you can't remember to shut off your phone, don't bring it to class.

Automotive Laboratories: Horseplay in an Automotive environment can be extremely dangerous and will not be tolerated, especially when dealing with hybrid components which have dangerous chemical/electrical elements. Safety glasses will be worn **AT ALL TIMES** when in the Auto Labs. Students without them will not be allowed to participate in lab assignments/lab lectures, will be given alternative assignments, and will also be required to make up lab work that was missed. You must be fully aware of your surroundings in the lab! Any student suspected of being under the influence of drug or alcohol may not be allowed to participate in class/lab and may be reprimanded, per school policy as outlined in the student handbook.

Smoking: This is a state owned facility; smoking anywhere near an entrance to a state building is a fineable offense.

Vandalism and Theft: Vandalism or Theft of School (State of Connecticut) property, including Automotive Department Vehicles, tools, and equipment is an offense punishable by law. **All Automotive Labs are under high definition camera surveillance.** The cars and tools in the lab have to be used for years to come. Please don't ruin the quality of your future classmate's education!

Please read your student handbook and familiarize yourself with Gateway's policies and procedures. It benefits YOU to understand this system and know your rights as a student!

Please notify me of any special circumstances that will affect your attendance in my class.

Welcome, let's have a safe and productive semester!

