Course Syllabus & Policies – Vehicle Electronics

Course: ECE 4xx – Vehicle Electronics, 3(3,0)

Time: TBA
Room: TBA

Instructor: Dr. T. Hubing, Michelin Professor of Vehicle Electronics, hubing@clemson.edu

Office Hours: Posted outside of office or by appointment

Textbooks:

1. Modern Electric, Hybrid Electric, and Fuel Cell Vehicles: Fundamentals, Theory, and Design, Second Edition, M. Ehsani, Y. Gao and A. Emadi, CRC Press 2009.
2. Automotive In-vehicle networks, J. Gabriel Leen, John Wiley & Sons, 2010.

References:

1. Automotive Electrics-Automotive Electronics, Fifth Edition, Bosch Handbooks, Bentley Publishers, 2007.
2. Handbook of Automotive Power Electronics and Motor Drives, Ali Emadi, ed., Taylor & Francis 2005.

Catalog Description:

Introduction to vehicle electronic systems and networks with an emphasis on vehicles powered by internal combustion engines, electric drives or hybrid electric drives. Topics include a review of electronic systems in automotive and aerospace applications; vehicle components, sensors and actuators; communication busses; electric power generation and distribution in vehicle systems; vehicle diagnostics; reliability; and trends in vehicle system design. *Prerequisite*: ECE 320 or consent of instructor

Course Objectives:

1. Students will become familiar with the various electronic components and systems in a typical automobile.
2. Students will become familiar with the various automotive communication busses and be able to select an appropriate bus for a particular application.
3. Students will learn to obtain information about a vehicle's status or performance by monitoring the various communications busses.
4. Students will become familiar with automotive design and development cycles and how vehicle electronics fits in to this process.
5. Students will learn to recognize factors that are likely to impact the cost and reliability of electronic components.

Course Grading:

2 Exams = 30 %
Quizzes (throughout the semester) = 10%
Homework (assignments throughout the semester) = 20 %
Design Project = 20 %
Final Exam = 20 %
Total = 100%

Grading Policy:

10% will be deducted from late homework assignments turned in within 24 hours of the deadline. 50% will be deducted from late homework assignments that are more than 24 hours but less than 7 days late. No credit will be given for homework turned in more than 7 days after the deadline.

All questions and problems regarding grades must be presented in writing within one week after the test, homework, or project has been returned. Grades will be assigned based on all the work you have completed during the semester following the traditional practice of A=90-100, B=80-89, C=70-79, D=60-69, F<60.

Attendance:

Attendance in class and at guest lectures is required. Students with more than 2 unexcused absences will not receive a passing grade in the class. An unexcused absence is any absence for which the instructor was not notified before the start of the class.

Academic Honesty (Clemson University Catalog):

"*As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.*"

Learning Disabilities:

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities. Students are encouraged to contact Student Disability Services to discuss their individual needs for accommodation. Any student with an official Clemson University recognized learning disability must inform the instructor within the first week of class meetings so that arrangements can be made to meet the student's needs.