EEL 4744C  Microprocessor Applications

1. Catalog Description – (3 credits) Elements of microprocessor-based systems; hardware interfacing and software design for their application. Laboratory.

2. Pre-requisites and Co-requisites (Be specific – 5000 level courses should list topics, for example Phys 2049 or equivalent)

3. Course Objectives - The student will learn the functional and technological characteristics of microprocessor structures, memory components, peripheral support devices, and interface logic. Through laboratory experiments and textbook examples the student will learn how to integrate and apply microcomputer subsystems and components to common interfacing problems. The Motorola 68HC12 microcontroller and in-house development board will serve as the vehicle for exploring these topics.

4. Contribution of course to meeting the professional component (ABET only – undergraduate courses) - 4 credits of Engineering Design

5. Relationship of course to program outcomes: Skills student will develop in this course (ABET only undergraduate courses) - EE2, a, c, e, g, k

6. Instructor – Dr. Eric Schwartz
   a. Office location: 321 MAE-B
   b. Telephone: 392-2541
   c. E-mail address: ems@mil.ufl.edu
   d. Class Web site: http://mil.ufl.edu/4744/
   e. Office hours:

7. Teaching Assistant -
   a. Office location:
   b. Telephone:
   c. E-mail address:
   d. Office hours:

8. Meeting Times – Lecture: T 7th, R 7th-8th, various labs

9. Class/laboratory schedule - 3 classes of 50 minutes each and 1 laboratory section of 3 hours per week

10. Meeting Location – Lecture: 211 MAE-B, labs in 281 NEB

11. Material and Supply Fees - $166.35

12. Textbooks and Software Required -
   a. Title: Microcontrollers and Microcomputers Principles of Software and Hardware Engineering
b. Author: F. Cady,
c. Publication date and edition: Oxford University Press, 2nd edition
d. ISBN number: 9780195371611
e. Hardware: laptop

13. Recommended Reading -
   a. Title: Microcomputer Engineering
   b. Author: Glenn H. Miller
   c. Publication date and edition: Prentice Hall, 1999
   d. ISBN number:

   a. Title: Fundamentals of Computer Engineering
   b. Author: H. Lam and A. Arroyo
   c. Publication date and edition: University Copy Center
   d. ISBN number:

   a. Title: Design with Microcontrollers
   b. Author: J. Peatman
   d. ISBN number:

   a. Title: Fundamental Principles of MicroComputer Architecture
   b. Author: K. Doty
   c. Publication date and edition: Matrix Publishers, 1979
   d. ISBN number:

14. Course Outline –
   Introduction
   Programming Model and Addressing Models
   68HC12 Instruction Set, Design, Programming
   Computer Buses and Parallel I/O
   Interrupts and Real-Time Events
   Memory concepts and interfacing
   Timers
   Serial I/O
   Analog I/O

15. Attendance and Expectations - Cell phones are to be silenced. No text messaging during class or exams. Bring printed notes to each class, perform all lab experiments at scheduled times, turn in homework assignments at beginning of class, work independently on homework assignments and lab experiments.

   Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at:
   https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx
16. Grading – Part of your grade on tests, quizzes, labs, etc. is based not only on solving the problem you are presented with, but the manner in which you solve it.

3 Midterm Exams 62-72% (Exams are equally weighted)
Laboratory 25%* (Some labs will count as less than 1 lab, some as a 1 lab, and some as more than 1 lab)
Homework 3%† (5-10 homework)
(Pop) Quizzes 0-10% (0-10 quizzes)
Total 100% (90+ on exam 3 results in 5% grade bonus, e.g., 86% 91%)

17. Grading Scale –
A 100%
B 35%
C 45%
D&E 10%

“A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

18. Make-Up Exam Policy - If you have a University-approved excuse and arrange for it in advance, or in case of documented emergency, a make-up exam will be allowed and arrangements can be made for making up missed work. University attendance policies can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Otherwise, make-up exams will be considered only in extraordinary cases, and must be taken before the scheduled exam. The student must submit a written petition to the instructor two weeks prior to the scheduled exam and the instructor must approve the petition.

19. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

“…failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures (http://www.dso.ufl.edu/sccr/procedures/honorcode.php)

20. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will
provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. UF Counseling Services – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
   · UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
   · Career Resource Center, Reitz Union, 392-1601, career and job search services.

22. Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.