EEO 124: C Programming for Electrical Engineers
Summer 2014

2013-2014 Catalog Description: An introductory computer programming course using the ANSI C language with emphasis on topics of interest to electrical engineers. Subjects include data types, operations, program control structures, functions, data files, numerical techniques, pointers, structures, and bit operations. Students gain experience in applying the C language to the solution of a variety of electrical engineering problems.

Course Designation: Required

Text Book: "Programming in C" by Stephen G. Kochan, 3rd edition, Sams publishing, 2005.

Prerequisites: Calculus I and EEO Major

Instructor: David Westerfeld

Goals: The goal of this course is to provide a solid foundation in computer programming using the C programming language.

Objectives: After completing this course, students should be able to: 1) write programs in the C language, 2) understand computer data types, 3) write self-documented code through effective commenting, 4) effectively use debugging aids, 5) work efficiently with an integrated development environment (IDE).

Topics Covered:

We will cover a complete introduction to the C language, including topics from chapters 1 through 14, 16 and 17 in Kochan.

Week 1	chapter 1,2	Purpose of computer languages, history of C and its family tree
Week 2	chapter 3,4	Relationship between C and machine code, compilation
Week 3	chapter 4	Data types and platform independence
Week 4	chapter 5	Structured programming: *do, for,* and *while* loops
Week 5	chapter 6	Conditional programming: *if* and *switch* statements
Week 6	chapter 7	Data arrays
Week 7	chapter 8	Functions and scope of variables
Week 8	chapter 9	Data structures
Week 9	chapter 10,11	*char* strings and pointers
Week 10	chapter 11	Pointers and multidimensional arrays
Week 11	chapter 12	Bit wise operators
Week 12	chapter 13	Operation of the preprocessor
Week 13	chapter 14	Data types: the *typedef* statement

Week 14	chapter 16, 17	I/O in C, using disk files, memory allocation

Class Schedule: 3 lecture hours per week

Student Outcomes and Assessment	**% contribution**
❑ (a) an ability to apply knowledge of mathematics, science and engineering	
❑ (b1) an ability to design and conduct experiments	
❑ (b2) an ability to analyze and interpret data	
❑ (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
❑ (d) an ability to function on multi-disciplinary teams	
✓ (e) an ability to identify, formulate, and solve engineering problems	45
❑ (f) an understanding of professional and ethical responsibility	
❑ (g) an ability to communicate effectively	
❑ (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
❑ (i) a recognition of the need for, and an ability to engage in life-long learning	
❑ (j) a knowledge of contemporary issues	
✓ (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	40
✓ (l) an ability to communicate and/or collaborate effectively online	15

Grading:

The grading will be broken down as follows:

Homework	50%
Collaborative project	20%
Final exam	30%

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