

1. *Course number and name*
ENGR 213: Introduction to C Programming for Engineers
2. *Credits and contact hours*
3 credit hours; two 50-minute lecture sessions/week and one 2-hour-45-minute lab session/week
3. *Instructor's or course coordinator's name*
Instructor: S. Volkoff, Instructor
Course coordinator: Tom Holton, Professor of Electrical Engineering
4. *Text book, title, author, and year*
 - Barnett, R.H. (2007): *Embedded C Programming and the Atmel AVR*. Delmar Cengage Learning
 - King, K.N. (2008): *C Programming: A modern Approach. 2nd Edition*. W.W. Norton
 - a. *other supplemental materials*
(none)
5. *Specific course information*
 - a. *brief description of the content of the course (catalog description)*
Introduction to C programming; defining and analyzing problems; design of algorithms; implementation, testing, debugging, maintenance and documentation of programs; coverage of basic algorithms, programming concepts and data types; C programming of microcontrollers.
 - b. *prerequisites or co-requisites*
grade of C or better in MATH 226
 - c. *indicate whether a required, elective, or selected elective course in the program*
Required for Electrical and Computer Engineering.
6. *Specific goals for the course*
 - a. *specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*
 - Students will demonstrate an understanding defining problems, implementing, compiling, debugging and editing computer programs.
 - Students will demonstrate an understanding of data types, variables and constants.
 - Students will demonstrate an understanding of operators and expressions, control statements and loops and functions.
 - Students will demonstrate an understanding of the microcontroller and its resources.
 - Students will demonstrate an understanding of C programming of microcontrollers for measurement and control applications.
 - b. *explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.*

Course addresses ABET Student Outcome(s): a, b, c, e.

7. *Brief list of topics to be covered*

- Introduction to programming and embedded systems.
- Problem definition, algorithm design.
- Input and output, data types, variables, constants
- Operators and expressions, control statements and loops, functions.
- Arrays, pointers, strings, structures and unions, memory types
- Compiling, debugging, editing and documenting programs
- C programming of microcontrollers for measurement and control applications