*1. Course number and name*

**ENGR 213: Introduction to C Programming for Engineers**

*2. Credits, contact hours, and categorization of credits in Table 5-1 (math and basic science, engineering topic, and/or other).*   
3 credits; two 75-minute lectures/week

*3. Instructor’s or course coordinator’s name*

Instructor: Zhuwei Qin, and Sanchita Ghose

Course coordinator: Zhuwei Qin

*4. Text book, title, author, and year*

Ivor Horton. Beginning C, 5th Edition, 2013

*a. other supplemental materials*

Supplemental online content (videos, web-based coding tutorial, etc.) delivered via course webpage.

*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*

MATH 226: Calculus I

ENGR 212: Introduction to Unix and Linux for Engineers

*c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program*

Required for Computer Engineering and Electrical Engineering Program.

*6. Specific goals for the course*

*a. specific outcomes of instruction (e.g. The student will be able to explain the significance of current research about a particular topic.)*

* The student will demonstrate an understanding defining problems, implementing, compiling, debugging, and editing computer programs;
* The student will demonstrate an understanding of data types, variables, and constants;
* The student will demonstrate understanding of operators and expressions, control statements, and loops and functions;
* The student will demonstrate an understanding of the microcontroller and its resources;
* The student 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.*

ABET student outcomes: 1, 2, 6, 7

*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.