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**
   
   
   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