1. **Course number and name**  
   ENGR 103: Introduction to Computers

2. **Credits and contact hours**  
   1 credit hour; one 2-hour-45-minute lab session/week

3. **Instructor’s or course coordinator’s name**  
   Instructor: Susan M. Bowley, Ph.D.  
   Course coordinator: Cheng Chen, Associate Professor

4. **Text book, title, author, and year**  
   
   a. **other supplemental materials**  
      
      - Arduino Starter Kit  

5. **Specific course information**  
   
   a. **brief description of the content of the course (catalog description)**  
      Introductory course on programming, using a high-level language. Use of algorithms. Program organization, formulation, and solution of engineering problems. Laboratory.
   
   b. **prerequisites or co-requisites**  
      MATH 226: Calculus I
   
   c. **indicate whether a required, elective, or selected elective course in the program**  
      Required for Civil Engineering and Mechanical 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 ability to use PC based computers and the university main frame.  
      - Students will demonstrate an ability to use the ANSI-C compiler with multiple operating systems by using PCs and the main frame.  
      - Students will demonstrate knowledge of the basic grammar of ANSI-C language.  
      - Students will demonstrate knowledge of "hands–on" practice in the engineering computer lab.  
      - The student will demonstrate knowledge of writing basic engineering problems.

   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, K

7. **Brief list of topics to be covered**
   - Introduction to Computers, the Internet and the Web
   - Introduction to C Programming
   - Structured Program Development in C
   - C Program Control
   - C Functions
   - C Arrays
   - C Pointers
   - C Characters and Strings
   - C Formatted Input/Output
   - C Structures, Unions, Bit Manipulation and Enumerations
   - C File Processing
   - C Data Structures
   - C Preprocessor
   - Other C Topics
   - C++ as a Better C; Introducing Object Technology