1. **Course number and name**
   - **EE 3376 Microprocessor Systems I**
   - **EE 3176 Laboratory for Microprocessor Systems I**

2. **Credits and contact hours**
   - **EE 3376: 3 credits, 3 contact hours**
   - **EE 3176: 1 credit, 3 contact hours**

3. **Instructor's or course coordinator's name**
   - **Rodrigo Romero**

4. **Text book, title, author, and year**
   - **Programmable Microcontrollers with Applications – MSP430 LaunchPad with CCS and Grace. Cem Ünsalan and H. Deniz Gürhan. ISBN 978-0-07- 183003-4. McGraw Hill**
     a. **other supplemental materials**
        i. **Online materials: http://www.ece.utep.edu/courses/web3376/EE3376.html**

5. **Specific course information**
   a. **brief description of the content of the course (catalog description)**
      i. **EE 3376: Study of microprocessor programming models, assembly language, macro assemblers, and an introduction to system integration and interfacing.**
      ii. **EE 3176: Assembly language programming of microcomputer systems.**
   b. **prerequisites or co-requisites**
      i. **Prerequisites: EE 2369 (Digital System Design I), EE 2372 (Software Design I), and EE 2351 (Electric Circuits II), each with a "C" or better**
      ii. **Co-requisites: EE 3376: EE3176**

EE 3176: EE3376

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

6. **Specific goals for the course**
   a. **specific outcomes of instruction**

Upon completion of EE 3376 and its corresponding lab, student will be able to

   i. **Write assembly language programs (ABET 1c, 2a, 2b, 3b, 6a, 6b, 6c).**
   ii. **Explain program organization and general software environment of a microprocessor system (ABET 1c, 3b).**
   iii. **Understand the basic features of computer hardware (ABET 1c, 2a, 2b, 6a, 6b, 6c).**
   iv. **Understand system integration and interfacing at a basic level (ABET 1a, 1b, 1c, 2a, 2b, 6a, 6b, 6c).**
   v. **Demonstrate competence in written technical communication (ABET 3b).**

b. **explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.**
    i. **Student outcome 1c, "an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics"**
    ii. **Student outcome 2a, 2b, "an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors"**
    iii. **Student outcome 6a-6c, "an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions"**

7. **Brief list of topics to be covered**
    - **Microcontroller micro-architecture**
    - **Assembly Language Programming**
    - **Instruction Set Architecture**
    - **Digital I/O**
    - **Interrupts**
    - **Stack Operations**
    - **Functions of Timers**
    - **Microcontroller Datasheet**
    - **Microcontroller Interfacing**
    - **Serial Communications**
    - **Analog to Digital Conversion**