1. **Course number and name**

   **ENGR 434: Principles of Environmental Engineering**

2. **Credits and contact hours**

   3 Credits, 3-Hours classroom per week.

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

   Instructor: 
   Course coordinator: Elahe Enssani, Ph.D., PE,

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

   2. Class Reader. Download at URL: [http://online.sfsu.edu/~enssani](http://online.sfsu.edu/~enssani)

   a. **other supplemental materials**

      (Optional References)

5. **Specific course information**

   a. **brief description of the content of the course (catalog description)**

      Principles and fundamentals of environmental engineering. Topics include water resources, ground hydrology, water quality, water chemistry, water and wastewater treatment, air quality, and solid waste management.

   b. **prerequisites or co-requisites**

      ENGR 304 (may be taken concurrently), CHEM 115.

   c. **indicate whether a required, elective, or selected elective course in the program**

      Required for Civil 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.**

      - Develop student understanding of the basic concepts in water resources.
      - Develop student understanding of the fundamental principles of water chemistry as needed in environmental engineering.
      - Develop student understanding of the fundamentals of water quality parameters and criteria.
Template for ABET course syllabi (new format)

- Develop student understanding of the fundamentals of water treatment processes.
- Acquaint student with fundamentals of wastewater collection systems design.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course: [a, b, c, e, i]

7. Brief list of topics to be covered

- Hydrologic Cycle.
- Municipal Water consumption and water resources.
- Ground water hydrology.
- Water law doctrines.
- Transmission Facilities, reservoir design, distribution systems.
- Water quality parameters.
- Water chemistry.
- Drinking water standards.
- Disinfection.
- Water treatment processes.
- Wastewater collection, sewer systems.
- Wastewater treatment processes.
- Solid Waste/Hazardous Waste Management
- Air Quality Criteria/Management
- Contemporary issues