1. **Course number and name**  
   **ENGR 203: Materials of Electrical and Electronic Engineering**

2. **Credits and contact hours**  
   3 Credits.

3. **Instructor’s or course coordinator’s name**  
   Instructor: Nilgun Ozer, MEP Director  
   Course coordinator: Nilgun Ozer, MEP Director

4. **Text book, title, author, and year**  
   Ian P. Jones. *Materials Science for Electrical and Electronic Engineers*.  
   
   a. **other supplemental materials**
   
   *(Optional References)*

5. **Specific course information**  
   a. **brief description of the content of the course (catalog description)**
      
      Application of basic principles of physics and chemistry to electrical and electronic (EE) engineering materials. Conductors, insulators and semiconductors; electrical conductors; mechanical properties of conductors, manufacturing conductors; electrochemistry; electrical insulators; plastics; magnetic materials; superconductors and optical fibers.

   b. **prerequisites or co-requisites**
      
      A grade of C or better in CHEM 115

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


The student will demonstrate an ability to describe and solve problems on atomic arrangements, geometry of perfections, and atomic diffusion in electric and electronic materials.

The student will demonstrate an ability to describe and solve problems on electrical and mechanical behavior of conductors, insulators and semiconductors.

The student will demonstrate an ability to submit homework solutions in proper engineering format.

The student will demonstrate an ability to describe and solve problems on the distinguishing properties of conductors, insulators and semiconductors.

The student will demonstrate a familiarity with the applications of engineering materials in electric and electronic devices.

The student will demonstrate an understanding of the principles of the operation and fabrication of microelectronic devices from materials viewpoint.

The student will demonstrate ability to present technical information clearly in both oral and written formats.

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, e, g, h

7. Brief list of topics to be covered

- Conductors insulators and semiconductors
- Electrical conductors: metals
- Electrical Insulators: ceramics and plastics
- Semiconductors and other Materials: magnetic materials, superconductors and optical materials
- Electrochemistry: electroplating and corrosion