1. Course number and name

**ENGR488 Introduction to Engineering Electromagnetics**

2. Credits, contact hours

**3 credits; two 75-minute lectures per week; engineering topic**

3. Instructor’s name

**Dr.** **Rashid R. Kohan**

4. Text book, title, author, and year

**N. Mohan, *A First Course in Electric Power Systems*, Wiley, 2012**

a. other supplemental materials

**J. D. Glover, T. J. Overbye, and M. S. Sarma, Power system analysis and design, 6th Edition, Cengage Learning, 2017**

5. Specific course information

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

**Introduction to electric power industry. Electric circuit and electric power.**

**Transmission lines. Power flow. Transformers. HVDC. Power quality. Synchronous**

**generators. Stability in Power System. Transmission line faults.**

b. prerequisites

**ENGR 306 with grade C- or better**

c. required or elective course

**Elective for Electrical and Computer Engineering**

6. Specific goals for the course

a. specific outcomes of instruction

* The students will demonstrate their understanding about electric power  
  industry.
* The students will demonstrate their understanding about electric circuit and  
  electric power.
* The students will demonstrate their understanding about transmission lines.
* The students will demonstrate their understanding about power flow.
* The students will demonstrate their ability to analyze power transformers. The  
  students will demonstrate their understanding about High Voltage DC  
  (HVDC) transmission systems.
* The students will demonstrate their understanding about distribution systems,  
  loads and power quality.
* The students will demonstrate their ability to analyze synchronous generators.
* The students will demonstrate their ability to analyze voltage regulation and  
  stability in power systems.
* The students will demonstrate their ability to analyze transmission line faults,  
  relaying, and circuit breakers.

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): 1, 2, 3, 7

7. Brief list of topics to be covered

* Introduction to electric power industry.
* Fundamentals of electric circuit and electric power.
* AC transmission lines.
* Power flow.
* Power transformers.
* Distribution systems, loads and power quality.
* Synchronous generators.
* Voltage regulation and stability.