1. **Course number and name**
   **ENGR 455: Power Electronics**

2. **Credits and contact hours**
   4 credit hours

3. **Instructor’s or course coordinator’s name**
   Instructor: Jin Ye, Ph.D.
   Course coordinator: Jin Ye

4. **Text book, title, author, and year**
   
   *a. other supplemental materials*

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

   *b. prerequisites or co-requisites*
   Grades of C or better in Engr 353 and ENGR 301 and ENGR 306

   *c. indicate whether a required, elective, or selected elective course in the program*
   Elective for Computer and 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 students will demonstrate their understanding about power electronic devices.
   - The students will demonstrate their ability to analyze and design switch-mode DC-DC converters.
   - The students will demonstrate their ability to design feedback controller for switch-mode DC-DC converters.

   *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, b, c, k

7. **Brief list of topics to be covered**
• Introduction to power electronics.
• Design of switching power-roles.
• Analysis and design of switch-mode DC-DC converters.
• Feedback controller design in switch-mode DC-DC converters.
• Rectification of utility input using diode rectifiers.
• Switch-mode DC power supplies.
• Power electronics applications.