

# EE 420 : Power Electronics

The course teaches the principles of designing power electronic circuits. Power electronics design has applications in several fields from motor drives to consumer electronics to electric power transmission over HVDC lines. Therefore, the course reviews the fundamentals before covering generic power electronic circuit topologies. This entails a review of the switching devices, e.g., diodes, thyristors, BJTs, and the review of the fundamentals of electric circuit design and magnetism. Building on the fundamentals, the course covers AC to DC, DC to DC, DC to AC, and AC to AC electric power conversion topologies. The lab component is simultaneously administered to offer a practical perspective including the selection of components vis-à-vis the application, the instrumentation. In addition, the lab goes over the prototyping and testing aspects of power electronic circuit design.

**Credits** 3

**Lab Hours** 0

**Lecture Hours** 3

**Tutoring Hours** 0

**Prerequisites**

EE 304

**Corequisites**

None