

Course Syllabus	EECS 4480 – Electronic Energy Processing I
Credits & Contact Hours	3 credits & two 75-minute lecture contact hours per week
Instructor's Name	Dr. Raghav Khanna
Textbook	R. W. Erickson, D. Maksimovic, "Fundamentals of Power Electronics," 2nd edition, Kluwer 2001, ISBN: 0-7923-7270-0.
Course Information	<p>Basic electronic power switching circuits, characteristics of power semiconductors, isolated and non-isolated DC-DC converters, inverters (DC-AC conversion) and rectifiers (DC-AC converters)</p> <p>Prerequisite: EECS 3400</p> <p>Elective for EE majors</p>
Specific Goals-Student Learning Objectives	<p>The student will be able to</p> <ol style="list-style-type: none"> 1. Analyze and design DC-DC converters 2. Understand the effects of the parasitic on-resistance and capacitances of a FET 3. Understand the difference between the continuous and discontinuous conduction modes in DC-DC converters 4. Analyze and design inverters with sinusoidal pulse width modulation, and no pulse width modulation
Topics	<ol style="list-style-type: none"> 1. DC-DC converters in continuous conduction mode 2. Non idealities in DC-DC converters 3. Transients, switching loss, and gate drive circuits 4. The discontinuous conduction mode of DC-DC converters 5. Inverters (DC-AC converters) 6. Isolated DC-DC converters 7. Rectifiers (AC-DC converters)