

EE 421 – Power Electronic (1)

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2; Lab: 2

COURSE COORDINATOR

Dr Hady El Helw

TEXT BOOK:

M. H. Rashid, "Power Electronics: Circuits, Devices and Applications", Prentice Hall

COURSE DESCRIPTION:

Power electronic and characteristics-basic of power electronics. Thyristors gating circuits. Commutation techniques. Single phase and three phase converters (controlled and uncontrolled).

PREREQUISITE:

EE 231, EC238

RELATION OF COURSE TO PROGRAM:

Required

COURSE INSTRUCTION OUTCOMES:

The student gains detailed knowledge related to the subject of power electronic devices and A.C. - D.C. converters.

TOPICS COVERED:

- Basics of power electronics and characteristics.
- Thyristors gating circuits.
- Commutation techniques.
- Single phase and three phase converters (controlled and uncontrolled).
- Power factor improvement techniques.

**CONTRIBUTION OF COURSE TO MEET THE REQUIREMENTS OF
CRITERION 5:**

Professional Component Content			
Math and Basic Sciences	Engineering Topics	General Education	Engineering Design
	✓		✓

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:

Student Outcomes		Course Outcomes
a.	An ability to apply knowledge of mathematics, science, and engineering.	
b.	An ability to design and conduct experiments, analyze and interpret data.	✓
c.	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	
d.	An ability to function on multi-disciplinary teams.	
e.	An ability to identify, formulate, and solve engineering problems.	✓
f.	An understanding of professional and ethical responsibility.	
g.	An ability to communicate effectively.	
h.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal content	
i.	A recognition of the need for, and an ability to engage in life-long learning.	✓
j.	A knowledge of contemporary issues within and outside the electrical engineering profession.	
k.	An ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice.	✓