

EE 323 Power Electronics (1)

COURSE INFORMATION

Prerequisites	Academic Year &Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Lab.	
EE231/ EC237	3	6	2	2	2	3

COURSE AIM

To enable junior students to scan general characteristics of power electronics devices
 To understand and be familiar with thyristors circuits, applications and gate firing
 To investigate the different topologies of single-phase and three-phase rectifiers and AC voltage controllers.

COURSE WEEKLY CONTENTS

- 1 Introduction to Power Electronics
- 2 Power Diodes
- 3 Single phase half wave uncontrolled rectifier
- 4 Single phase full wave uncontrolled rectifier
- 5 Three phase uncontrolled rectifiers
- 6 Filtering systems in rectifier circuits
- 7 Thyristors and Gate Drive Circuits. + Midterm Exam
- 8 Line commutated single phase half wave controlled rectifier
- 9 Line commutated single phase full wave controlled rectifier
- 10 Line commutated three phase controlled rectifier
- 11 Dual Converter
- 12 Recommended Case Studies: Battery Charger, HVDC + 12Th Week Assessment
- 13 Single phase AC Voltage controllers principles
- 14 Three phase half wave AC voltage controllers
- 15 Cyclo-converters

STUDENT GRADING & ASSESSMENT

Weeks	Exams	Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	20 Midterm	←	1 0	M A R K S		→	30
To be freely distributed among possible assessments							
8 to 12	←		2 0	M A R K S		→	20
13 to 15	←		1 0	M A R K S		→	10
16 or 17	40 Final						40
Total	Exams	Assign.	Quizzes	Reports	Present.	Lab.	100

R E F E R E N C E S

Textbook	M. H. Rashid, "Power Electronics: Circuits, Devices and Applications", Prentice Hall, 2004
Other	P. C. Sen, "Principles of Electrical Machines and Power Electronics ",John Wiely.