EE 423 Power Electronics (2)

COURSE INFORMATION

Prerequisites	Academic Year &Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Lab.	
EE 323	4	7	2	2	2	3

COURSE AIM

Providing detailed skills related to subject of DC/DC converters (choppers) and DC-AC inverters.
To investigate the different aspects of DC regulators.
To study different applications of DC/DC converters and inverters.

COURSE WEEKLY CONTENTS

1 The MOSFET Power Transistor
2 Principles of DC/DC converters and classification
3 The buck and boost regulators
4 The Buck-Boost and the Cuk regulators
5 Discontinuous Current Mode (DCM) operation of DC/DC converters
6 Design of DC/DC converters
7 Principles and performance of Single Phase Inverters + Midterm Exam
8 Three phase inverters
9 Pulse Width Modulation (PWM) techniques for inverters
10 Voltage control techniques
11 Other kinds of inverters such as CSI
12 Application Case study 1: Uninterupptible Power Supply (UPS)
13 Continue Application Case study 1: Uninterupptible Power Supply (UPS)
14 Application Case study 2: Stand-alone PV system.
15 Application Case study 3: grid-connected PV system.

STUDENT GRADING & ASSESSMENT

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

REFERENCES

Textbook M. H. Rashid, “Power Electronics: Devices, Circuits, and Applications” Pearson, 2014

Other Hart, Daniel “Power Electronics”, McGraw-Hill