

Course Outlines

Day 1

Introduction to Power Electronics

- History of power switching
- Basics of power conversion
- Power diodes, thyristors and transistors
- Passive components and magnetics

Power Converters

- Overview of power converter topologies
- Rectifier circuits
- DC/DC converters
- Introduction to circuit simulation tools

Hands-on Session: DC/DC converter design

Day 2

Power Inverters

- Types of power inverters
- Control strategies for inverter design
- Three phase inverters
- Introduction to switching power supplies

Solar Inverters – Part I

- Classification of solar inverters
- Maximum power point tracking (MPPT)
- Anti-islanding protection
- Solar micro-inverters

Hands-on Session: AC/DC inverter design

Day 3

Solar Inverters – Part II

- Grid-tie solar inverters
- Solar charge controller
- Solar pumping inverters
- Causes of inverter failure

Design Examples and Applications

- Power conditioning for solar cells
- Battery management for standalone PV system
- Power optimizer for solar PV system

Hands-on Session: Solar PV operated LED lamp

Course Overview

Power electronics is a fast growing field due to the emerging demand for high efficient use of energy sources. This course provides a practical overview on power electronics with special emphasis on DC/DC converter and DC/AC inverter design for solar PV system.

Who Will Benefit From This Course

This course is specially designed for *technicians*, *engineers* and *managers* interested in

- Power electronics design
- Solar inverters
- Practical design examples and applications
- Exposure to the usage of circuit design tools

Prerequisite

Basic knowledge of electronics

Course Duration

3 days, 9am – 5pm

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