

COURSE DETAIL

POWER ELECTRONICS AND POWER SYSTEMS

Country

United Kingdom - England

Host Institution

Imperial College London

Program(s)

Imperial College London

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Electrical Engineering

UCEAP Course Number

138

UCEAP Course Suffix**UCEAP Official Title**

POWER ELECTRONICS AND POWER SYSTEMS

UCEAP Transcript Title

POWER ELECTR&SYSTEM

UCEAP Quarter Units

7.50

UCEAP Semester Units

5.00

Course Description

This course explores aspects of electrical power in the context of a wider energy system. The first aspect is electronic “switch-mode” circuits for conditioning and converting power such as in the grid interface for solar and wind energy systems. Circuits for various types of conversion between DC voltage levels and to/from AC are analyzed in order to support circuit design to meet a performance specification. The second aspect covers the electromagnetic devices such as transformers, motors, generators, and transmission lines of an AC power systems. The performance and efficiency of each type of electromagnetic device will be analyzed. The link between these devices and how frequency and voltage of a power system are controlled will be illustrated. The course concludes with a discussion of the transition needed in power systems to achieve zero carbon dioxide emissions and the roles of power electronic, electromagnetic, and information technologies have in that transition.

Language(s) of Instruction

English

Host Institution Course Number

ELEC50012

Host Institution Course Title

POWER ELECTRONICS AND POWER SYSTEMS

Host Institution Campus

Kensington

Host Institution Faculty

Host Institution Degree

Host Institution Department

Department of Electrical Engineering

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