“Introduction to Power Electronics“

Referents:

Prof. Dr.-Ing. Ralph Kennel
(ralph.kennel@tum.de)
Technische Universität München
Arcisstraße 21
80333 München
Germany
What is Power Electronics?

Power Electronics provides conversion:

- continuously (stepless)
- with high efficiency of physical quantities:
  - voltage
  - current
  - power
What is Power Electronics?

Power Electronics provides conversion
- static (without moving parts)
- with high efficiency
  by power semiconductors:
  - diodes
  - thyristors
  - transistors
Power Electronics Applications

• conversion of voltage(s), current(s) and frequency
• compensation of disturbances (voltage fluctuations etc.)
• reduction of tolerances (improved use of material and design)
• control of facilities and equipment
Electrical Energy Conversion by Converters
(Power Electronics)

- Gleichrichter (Rectifier)
- DC/DC Converter
- Chopper Controller
- Gleichstromsteller (DC-DC Converter Chopper Controller)
- Umrichter (Converter)
- Inverter
- Wechselrichter

... if output frequency = input frequency: (AC) Power Controller

(wenn Ausgangsfrequenz identisch zu Eingangsfrequenz: Drehstromsteller)
Thank you !!!