

University of Pretoria Yearbook 2021

Power electronics 780 (EED 780)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	32.00
NQF Level	08
Programmes	BEngHons Electrical Engineering
Prerequisites	Undergraduate level Power electronics
Contact time	32 contact hours per semester
Language of tuition	Module is presented in English
Department	Electrical, Electronic and Computer Engineering
Period of presentation	Semester 1 or Semester 2

Module content

Power semiconductors - basic structure, I-V characteristic physics of device operation, switching characteristics, SOA; passive components; converter topologies - AC-DC rectifiers, DC-DC converters, DC-AC inverters, AC-AC converters and resonant converters; Dynamics and control - state space models, feedback control design; Ancillary issues - gate and base drives, snubber circuits and clamps, thermal modelling and heatsinking; Applications - electric utility applications, isolated switch-mode power supplies, optimising of the utility interface with power electronic systems.

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