

University of Pretoria Yearbook 2021

Electromagnetism 310 (EMZ 310)

Qualification Undergraduate

Faculty [Faculty of Engineering, Built Environment and Information Technology](#)

Module credits 16.00

NQF Level 07

Programmes [BEng Electrical Engineering](#)

[BEng Electrical Engineering ENGAGE](#)

[BEng Electronic Engineering](#)

[BEng Electronic Engineering ENGAGE](#)

Prerequisites WTW 238 GS, WTW 263 GS, EIR 211/221 GS

Contact time 1 practical per week, 1 tutorial per week, 3 lectures per week

Language of tuition Module is presented in English

Department Electrical, Electronic and Computer Engineering

Period of presentation Semester 1

Module content

Transmission line equations, wave propagation, input impedance, power flow; Electrostatics, charge and current, laws of Coulomb and Gauss, scalar potential, properties of materials, boundary conditions, capacitance, Magnetostatics, laws of Biot-Savart and Ampère, magnetic properties of materials, boundary conditions; Plane wave propagation, polarisation, power density; Wave reflection and transmission, normal and oblique incidence.

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