University of Pretoria Yearbook 2022

Introduction to the science of measurement 716 (EIS 716)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	16 contact hours per semester
Language of tuition	Module is presented in English
Department	Electrical, Electronic and Computer Engineering
Period of presentation	Semester 1

Module content

Credits: 16 (must be combined with another 16 credit Laboratory in photonics module to form a 32 credit module)
Theory: Introduction to metrology, international equivalence of units of measurement, realisation of the SI units, principles of measurement, total quality management, data analysis and calculation of uncertainty of measurement. Practical: calibration of luminance and illuminance meters, calibration of an oscillator for frequency, calibration of a thermocouple and digital readout by comparison with an industrial platinum resistance thermometer, characterisation and composition of thin films, national measurement standards of length/mass/electrical current.