University of Pretoria Yearbook 2020

Strata control 310 (PSZ 310)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEng Mining Engineering
	BEng Mining Engineering ENGAGE
Prerequisites	SWK 210
Contact time	2 tutorials per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Mining Engineering
Period of presentation	Semester 2

Module content

Three dimensional stress and strain tensors and linear elasticity. The state of stress in the earth’s crust. Rock material and rock mass failure criteria. The response of the rock mass to underground excavations, energy release rate and excess shear stress. Mining induced seismicity, rock bursts and measures to minimise mining induced seismicity so as to improve SHE.
Geotechnics include understanding discontinuities in rock mass, stereo nets, cohesion and friction. Rock behaviour pertaining to excavations, understanding plane, circular and wedge failures, Rock slope safety factors. Slope stabilisation, neutral line theory, effects of water in a slope, monitoring of slopes and instruments available for slope stability monitoring, Risk concepts pertaining to slopes and a case study is discussed. Aspects of the Mine Health and Safety Act are also dealt with.