University of Pretoria Yearbook 2018

Continuum mechanics 787 (WTW 787)

Qualification	Postgraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	15.00
Programmes	BScHons Applied Mathematics
	BScHons Mathematics and Mathematics Education Algebra and Analysis
	BScHons Mathematics and Mathematics Education Applied Analysis
	BScHons Mathematics and Mathematics Education Differential Equations and Modelling
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Mathematics and Applied Mathematics
Period of presentation	Semester 2

Module content

Analysis of spatial versus material description of motion. Conservation laws. Derivation of stress tensors. Analysis of finite strain and rate of deformation tensors. Stress and strain invariants. Energy. Linear and nonlinear constitutive equations. Applications to boundary value problems in elasticity and fluid mechanics.