University of Pretoria Yearbook 2020

Finite element method 763 (WTW 763)

Qualification	Postgraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	15.00
Programmes	BScHons Applied Mathematics
	BScHons Financial Engineering
	BScHons 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
	BScHons Mathematics of Finance
Prerequisites	WTW 733 is strongly recommended
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

An analysis as well as an implementation (including computer programs) of methods is covered. Introduction to the theory of Sobolev spaces. Variational and weak formulation of elliptic, parabolic, hyperbolic and eigenvalue problems. Finite element approximation of problems in variational form, interpolation theory in Sobolev spaces, convergence and error estimates.