University of Pretoria Yearbook 2016

Numerical methods 420 (MWN 420)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEng Mechanical Engineering
	BEng Mechanical Engineering Engage
Prerequisites	No prerequisites.
Contact time	3 lectures per week, 1 practical per week
Language of tuition	English
Academic organisation	Mechanical and Aeronautical En
Period of presentation	Semester 2

Module content

Solution of systems of linear algebraic equations. Both iterative and direct methods are treated. Solutions are applied to both small and large scale systems. Solutions of systems of nonlinear equations. Eigenvalue problems. Numerical approximation strategies. Numerical integration and differentiation. Numerical solutions to initial-value problems for ordinary differential equations, boundary-value problems for ordinary differential equations and partial-differential equations.