

University of Pretoria Yearbook 2021

Finite element methods 780 (MEE 780)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	08
Prerequisites	A working knowledge of MATLAB/OCTAVE or FORTRAN77
Contact time	21 contact hours per semester
Language of tuition	Module is presented in English
Department	Mechanical and Aeronautical Engineering
Period of presentation	Semester 1

Module content

Stress and the differential equilibrium equation. Isoparametric formulation. Numerical integration. Reduced integration. Convergence, stability and accuracy. The Patch test. Membrane elements: assumed stress mixed interpolations. 3-D elements. Error estimates and mesh refinement. Sensitivity analysis.

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