University of Pretoria Yearbook 2016

Structural design 227 (MOW 227)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEng Mechanical Engineering
	BEng Mechanical Engineering Engage
Prerequisites	SWK 122
Contact time	4 tutorials per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Mechanical and Aeronautical En
Period of presentation	Semester 2

Module content

Analyse statistically determinate structures to obtain section forces and moments and stress distributions. Thin-walled pressure vessels. Stress and strain transformations. Introduction of stress tensor. Derivation of stress transformation equations. Eigenvalue/vector analysis for principle stresses and strains. Mohr’s circle. Failure criteria. Fatigue strength design. All analysis techniques above are applied to the open-ended design of components like beams and shafts.