University of Pretoria Yearbook 2018

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	3 lectures per week, 4 tutorials per week
Language of tuition	Separate classes for Afrikaans and English
Department	Mechanical and Aeronautical Engineering
Period of presentation	Semester 2

Module content

Analyse statically 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.