University of Pretoria Yearbook 2022

Structural design 227 (MOW 227)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	06
Programmes	BEng (Mechanical Engineering)
	BEng (Mechanical Engineering) ENGAGE
Prerequisites	SWK 122
Contact time	3 lectures per week, 4 tutorials per week
Language of tuition	Module is presented in 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. Axial loading, pure shear, torsion and bending. Stress and strain transformations. Derivation of stress transformation equations. Mohr’s circle. Failure criteria. Fatigue strength design. Introduction to code design, safety factors. All analysis techniques are applied to the open-ended design of hoisting systems and ropes, symmetric beams, shafts, springs, bolts and welds.