



University of Pretoria Yearbook 2020

Structural mechanics 310 (MSY 310)

Qualification Undergraduate

Faculty [Faculty of Engineering, Built Environment and Information Technology](#)

Module content Introduction of stress tensor. 3D stress and strain transformation. Eigenvalue/vector analysis for principal stresses and strains. Experimental strain measurements. Stress-strain relations. Strain energy. Thin-walled cylinders. Statically indeterminate stress systems. Bending stress, slope and deflection of beams, shear center, non-symmetric beams, composite beams, Castigliano's theorem. Statically indeterminate beams. Buckling instability. Yield criteria. Elementary plasticity. Structural steel design SANS code. Fracture mechanics. Fatigue.

Module credits 16.00

Programmes [BEng Mechanical Engineering](#)

[BEng Mechanical Engineering ENGAGE](#)

Prerequisites MOW 227, (WTW 256)

Contact time 1 practical per week, 3 lectures per week

Language of tuition Module is presented in English

Department Mechanical and Aeronautical Engineering

Period of presentation Semester 1

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