



University of Pretoria Yearbook 2020

Aeronautical structures 780 (MLT 780)

Qualification Postgraduate

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

Module content

Principles of stressed skin construction. General loads on aircraft. Static analysis of structures. Behaviour of aircraft materials. Basic Theory of elasticity. Energy methods & principles of virtual work. Stress analysis of thin-walled structures with and without thermal effects. Analysis of idealised semi-monocoque structures, boom-skin models of stiffened structures such as fuselage and wings, shear flow of idealised thin-walled sections. Fibre-reinforced composites of laminates subjected to bending and extensional stresses, thin walled composite beams. Column buckling with local instabilities, Johnson-Euler, beam columns. Plate buckling (shear, compression & bending), buckling of curved plates, skin effective width, Inter-rivet buckling, flange stability, lateral stability, crippling, inelastic buckling, buckling interaction.

Module credits 16.00

Prerequisites No prerequisites.

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 or Semester 2

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of each student to familiarise himself or herself well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.