



# University of Pretoria Yearbook 2017

## 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

**Programmes** [BEngHons Mechanical Engineering](#)

[BScHons Applied Science Mechanics](#)

**Prerequisites** No prerequisites.

**Contact time** 21 contact hours per semester

**Language of tuition** Module is presented in English

**Academic organisation** Mechanical and Aeronautical En

**Period of presentation** Semester 1 or Semester 2

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