



University of Pretoria Yearbook 2017

Aeronautics 420 (MLV 420)

Qualification Undergraduate

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

Module content Introduction to aerodynamics and aeronautics. Fundamental physical quantities of flowing gas. Equations of state. Anatomy of an airplane. Atmosphericology. Basic aerodynamics. Elementary compressible flow. The Kutta-Joukowski Theorem. Introduction to viscous flow. Laminar and Turbulent Boundary Layers. Skin friction. Transition Flow Separation. Airfoil nomenclature. Lift, drag and moment coefficients. Pressure coefficients. Airfoil data. Wing properties. Circulation, downwash, and induced drag. Span efficiency. Stall. High-lift devices. Drag. Propeller theory. Elements of airplane and flight performance. Range, endurance and payload. Principles of static stability and control.

Module credits 16.00

Programmes [BEng Mechanical Engineering](#)

[BEng Mechanical Engineering ENGAGE](#)

Prerequisites MTV 310

Contact time 1 practical per week, 3 lectures per week

Language of tuition Module is presented in English

Academic organisation Mechanical and Aeronautical En

Period of presentation Semester 2

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