



University of Pretoria Yearbook 2021

Aerodynamics 780 (MLD 780)

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| Qualification | Postgraduate |
| Faculty | Faculty of Engineering, Built Environment and Information Technology |
| Module credits | 16.00 |
| NQF Level | 08 |
| 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 |
| Department | Mechanical and Aeronautical Engineering |
| Period of presentation | Semester 1 or Semester 2 |

Module content

Review of the fundamentals of thermodynamics. Introduction to compressible flows. Advanced topics in compressible flows: transonic flow and supersonic flow. Oblique shock waves, expansion waves, shock-expansion theory, wave interactions and wave drag. Linearized compressible-flow theory. Effects of heat and friction on gas flow. Design aspects of high speed aeroplanes and viscous effects. Fundamentals of hypersonic flow and high temperature gas dynamics. On completion of this module the student will be able to understand the fundamental phenomena associated with compressible flow and competently apply analytical theory to compressible flow problems

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