

University of Pretoria Yearbook 2019

Strength of materials II 211 (SWK 211)

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| Qualification | Undergraduate |
| Faculty | Faculty of Engineering, Built Environment and Information Technology |
| Module credits | 16.00 |
| Programmes | BEng Civil Engineering BEng Civil Engineering Engage |
| Prerequisites | SWK 122 |
| Contact time | 2 lectures per week, 3 tutorials per week, 1 practical per week |
| Language of tuition | Module is presented in English |
| Department | Civil Engineering |
| Period of presentation | Semester 1 |

Module content

Centroids: centroids of lines, surfaces and volumes. Second moment of area, parallel axis theorem, products of inertia, moment of inertia around inclined axes. Fluid statics: resultant forces and their points of application on flat and curve surfaces. Constraints and statical determinacy. Shear forces and bending moments in beams. Deflection of beams: derivation and integration of differential equations. Friction: friction on surfaces, wedges and screws. Vibration: free undamped vibration, free damped vibration, forced undamped vibration, forced damped vibration, natural frequency and resonance. Cables: distributed loads, parabolic and uniform cables.

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