



# University of Pretoria Yearbook 2020

## Physics 116 (FSK 116)

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| <b>Qualification</b>          | Undergraduate  |
| <b>Faculty</b>                | <a href="#">Faculty of Natural and Agricultural Sciences</a>   |
| <b>Module credits</b>         | 16.00  |
| <b>Programmes</b>             | <a href="#">BEng Chemical Engineering</a><br><a href="#">BEng Computer Engineering</a><br><a href="#">BEng Computer Engineering ENGAGE</a><br><a href="#">BEng Industrial Engineering</a><br><a href="#">BEng Industrial Engineering ENGAGE</a><br><a href="#">BEng Mechanical Engineering</a><br><a href="#">BEng Mechanical Engineering ENGAGE</a> |
| <b>Service modules</b>        | Faculty of Engineering, Built Environment and Information Technology   |
| <b>Prerequisites</b>          | No prerequisites.  |
| <b>Contact time</b>           | 1 discussion class per week, 1 practical per week, 4 lectures per week   |
| <b>Language of tuition</b>    | Module is presented in English   |
| <b>Department</b>             | Physics  |
| <b>Period of presentation</b> | Semester 1   |

### Module content

Introductory mathematics: Symbols, exponents, logarithms, angles in degrees, radial measure, goniometry, differentiation, and integration. Motion along a straight line: position and displacement, acceleration. Vectors: adding vectors, components, multiplying vectors. Motion in two and three dimensions: projectile motion, circular motion. Force and motion: Newton's Law, force, friction. Kinetic energy and work: work, power. Potential energy: Centre of mass, linear momentum. Collisions: impulse and linear momentum, elastic collisions, inelastic collisions. Rotation: kinetic energy of rotation, torque. Oscillations and waves: Simple harmonic motion, types of waves, wavelength and frequency, interference of waves, standing waves, the Doppler effect. Temperature, heat and the first law of thermodynamics.

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