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# University of Pretoria Yearbook 2020

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## Numerical methods 420 (MWN 420)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Engineering, Built Environment and Information Technology</a>
<b>Module credits</b>	16.00
<b>Programmes</b>	<a href="#">BEng Mechanical Engineering</a>
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	1 practical per week, 3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Mechanical and Aeronautical Engineering
<b>Period of presentation</b>	Semester 2

### Module content

Solution of systems of linear algebraic equations. Both iterative and direct methods are treated. Solutions are applied to both small and large scale systems. Solutions of systems of nonlinear equations. Eigenvalue problems. Numerical approximation strategies. Numerical integration and differentiation. Numerical solutions to initial-value problems for ordinary differential equations, boundary-value problems for ordinary differential equations and partial-differential equations.

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