



# University of Pretoria Yearbook 2020

## Finite element method 763 (WTW 763)

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| <b>Qualification</b>          | Postgraduate  |
| <b>Faculty</b>                | Faculty of Natural and Agricultural Sciences  |
| <b>Module credits</b>         | 15.00   |
| <b>Programmes</b>             | <a href="#">BScHons Applied Mathematics</a><br><a href="#">BScHons Financial Engineering</a><br><a href="#">BScHons Mathematics</a><br><a href="#">BScHons Mathematics and Mathematics Education Algebra and Analysis</a><br><a href="#">BScHons Mathematics and Mathematics Education Applied Analysis</a><br><a href="#">BScHons Mathematics and Mathematics Education Differential Equations and Modelling</a><br><a href="#">BScHons Mathematics of Finance</a> |
| <b>Prerequisites</b>          | WTW 733 is strongly recommended   |
| <b>Contact time</b>           | 2 lectures per week   |
| <b>Language of tuition</b>    | Module is presented in English  |
| <b>Department</b>             | Mathematics and Applied Mathematics   |
| <b>Period of presentation</b> | Semester 2  |

### Module content

An analysis as well as an implementation (including computer programs) of methods is covered. Introduction to the theory of Sobolev spaces. Variational and weak formulation of elliptic, parabolic, hyperbolic and eigenvalue problems. Finite element approximation of problems in variational form, interpolation theory in Sobolev spaces, convergence and error estimates.

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