



---

# University of Pretoria Yearbook 2020

---

## Computational fluid dynamics 411 (MKM 411)

|                               |   |
|-------------------------------|---|
| <b>Qualification</b>          | Undergraduate   |
| <b>Faculty</b>                | <a href="#">Faculty of Engineering, Built Environment and Information Technology</a>  |
| <b>Module content</b>         | A fast review of partial differential equations, introduction to continuum mechanics, continuity equation, momentum equation, Navier- Stokes equation, energy equation, boundary conditions in thermal fluid systems, finite difference method, linear and non-linear partial differential equations, introduction to finite volume method (FVM), FVM for diffusion problems, FVM for convection-diffusion problems, introduction to pressure-velocity coupling in FVM, SIMPLE algorithm, introduction to computational fluid dynamics (CFD) software packages and their abilities, using CFD commercial software packages to solve thermal-fluid engineering problems. |
| <b>Module credits</b>         | 16.00   |
| <b>Programmes</b>             | <a href="#">BEng Mechanical Engineering</a><br><a href="#">BEng Mechanical Engineering ENGAGE</a>   |
| <b>Prerequisites</b>          | (MTV 310), (MKM 321)  |
| <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 1  |

---

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of each student to familiarise himself or herself well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.