

# University of Pretoria Yearbook 2022

## Vehicle dynamics 780 (MVI 780)

**Qualification** Postgraduate

**Faculty** [Faculty of Engineering, Built Environment and Information Technology](#)

**Module credits** 16.00

**NQF Level** 08

**Programmes** [BEngHons Mechanical Engineering](#)

[BScHons \(Applied Science\) Mechanics](#)

**Prerequisites** No prerequisites.

**Contact time** 21 contact hours per semester

**Language of tuition** Module is presented in English

**Department** Mechanical and Aeronautical Engineering

**Period of presentation** Semester 1

### Module content

Tyres: Characteristics and tyre models used in simulation of ride comfort and handling. Road inputs: Classification of roads. Road profiles. Road roughness. Suspension components: springs, dampers. Controllable suspension systems. Modelling aspects. Human reaction: Human response to vibration. Driver models. Human reaction times. Vertical vehicle dynamics (ride comfort): Vibration levels in a vehicle. Simulation of ride comfort. Effect of seat characteristics on vibration levels. Test and evaluation procedures. Lateral vehicle dynamics (handling): Simulation of steady state and dynamic handling. Rollover propensity. Test procedures. Computer applications: Application of computer codes in the analysis of vehicle dynamics.

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