

Optimal maintenance management enhances global competitiveness

Increasing awareness of the fact that optimal maintenance not only improves plant and infrastructure performance, but is essential to the global competitiveness of South African enterprises is the driving force behind the establishment of a Centre of Excellence in Maintenance Engineering at the University of Pretoria.

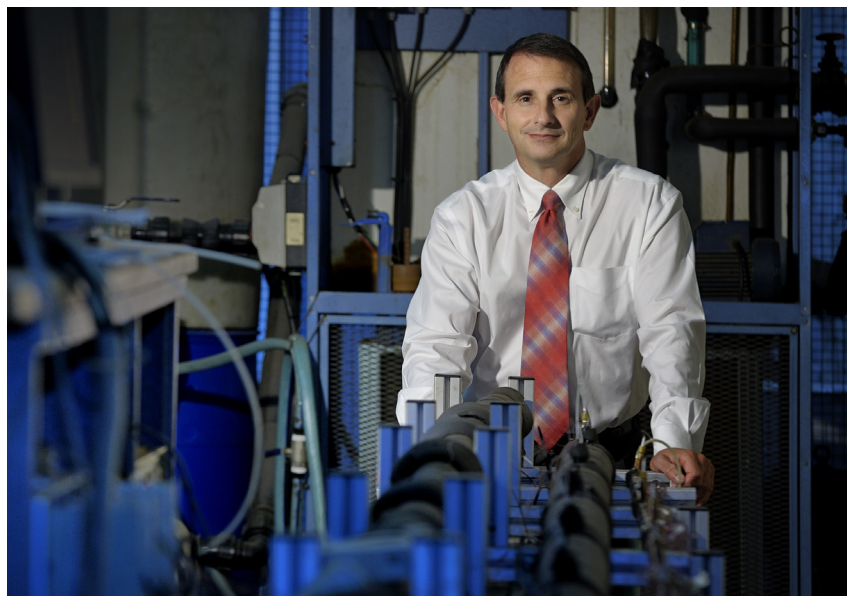
A maintenance engineering education and training programme was initiated in the Department of Mechanical and Aeronautical Engineering in 1994. However, this programme was downscaled in 2003 and effectively phased out in 2004 due to government funding policies.

Although the formal maintenance engineering programme was no longer presented, the department continued with its research programme, which supported maintenance-related issues. Projects in the field of condition-based maintenance have included master's projects such as gearbox vibration monitoring, the condition monitoring of electrical machines, dragline gearbox monitoring and rock bolt condition monitoring.

The most recent projects to be undertaken in this field include the development of a low-cost vibration monitoring system for gearboxes (MEng), the development of vibration monitoring techniques for varying speed and load machinery (PhD) and the development of prognostic methodologies for roller bearings (PhD).

The identification of an increasing industrial need resulted in a renewed interest in equipping engineering students to address maintenance issues in industry. This led to the establishment of a Centre of Excellence in Maintenance Engineering at the University of Pretoria in August 2010 after industry support was secured. It is located jointly in the Department of Mechanical and Aeronautical Engineering and the Graduate School of Technology Management.

In addition to modules such as Maintenance Practice, Condition-based Maintenance, Structural Integrity, Vibration Monitoring and Reliability Engineering, some new subjects are also being introduced. As maintenance actions are always measured against some cost value, Terotechnology examines the interaction of the cost principles, benefits and philosophies associated with maintenance decisions. Maintenance Management, on the other hand, examines the management principles and processes with which maintenance engineers work on a daily basis. [➔](#)



➔ *Prof Josua Meyer, chairperson of the School of Engineering.*