Title: Data-mining techniques for machines performance monitoring and early fault diagnosis.

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ABSTRACT.

Modern machines are nowadays equipped with developed control and monitoring systems (SCADA - System Control and Data Acquisition) able to record a vast amount of information on actual operation. The resulting database includes a full knowledge on machine's health and performance but it is often underused in normal industrial practice.
The main goal of the module is to fully investigate the real potential of new data-mining methods in monitoring the performance and detecting incoming faults especially for rotating machines. The topic is at the crossroads between mechanical, industrial and information engineering and is introduced in the module through the analysis of real test-cases by the use of machine-learning algorithms.

PROGRAM

1. SCADA infrastructures and database management
2. Data filtering and pre-processing
3. Analyzing the actual operational performance on a short- and long-term time horizon
4. Supporting maintenance and the fault diagnosis through machine learning
5. Real test case analysis and practical assignment