

**Course Title:** DMEI 4314 Condition-Based Monitoring and Maintenance Decision-Making

**Instructor:** Dragan Djurdjanovic

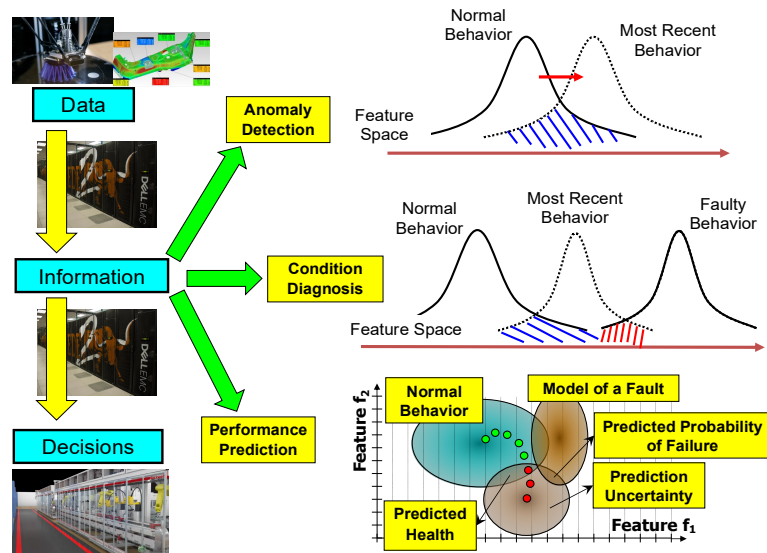
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### Course Description:

Condition-monitoring and maintenance decision-making is one of the crucial activities in manufacturing. It can be viewed as an activity in which raw data from sensors are transformed into useful information about the condition of the underlying equipment and further into optimal decisions on what to do with it to maintain functional operations of that piece of equipment and the overall manufacturing system (repair, replacement, system reconfiguration). The course will cover a range of concepts and methods that enable such transformations of data into useful information and decisions. Numerous examples of applying the aforementioned concepts will be presented, including monitoring of belt tension and alignment in material handling devices, vibration-based monitoring of valves and seals in an automation system, automotive engine diagnostics, as well as system-level maintenance and operational decision-making based on the equipment-level condition information.

### Topics covered:

- Concepts of Condition-Based Maintenance (CBM)
- Methods for Signal Processing and Feature Extraction
- Methods for Fault (Anomaly) Detection & Diagnosis
- The Concept and Methods for Integrated Operational Decision-Making in Manufacturing Systems (maintenance, production, logistics)
- Guest lectures and case studies from industry and national labs



### For more information about this course, Contact:

Dr. Dragan Djurdjanovic, [dragand@me.utexas.edu](mailto:dragand@me.utexas.edu)

### For more information about the I-DREAM4D Education Program, Contact:

Dr. Douglas Timmer at [Douglas.timmer@utrgv.edu](mailto:Douglas.timmer@utrgv.edu)

### For Internship opportunity, visit:

<https://idream4d.org/interns/>

To be offered in  
Fall 2021!

Upon accomplishing this course, students will be prepared for potential interns and jobs at companies such as:



Course offered by faculty members at:

