

Knowledge Enabled Engineering (7.5 HP)

Objectives

The aim of the course is to raise participants' understanding of the importance of information and knowledge sharing in modern product and service development activities. It provides an overview of practices, methods and technologies for engineering knowledge management, and their relevance to ensure timeliness and quality of the engineering work. These have been summarised under the umbrella term Knowledge Enabled Engineering (KEE). KEE expands Knowledge Engineering (KE), which is a well-established research area in computer science, to study how engineering knowledge support shall be used to take better decisions along the different steps of the design process.

Duration and Deadlines

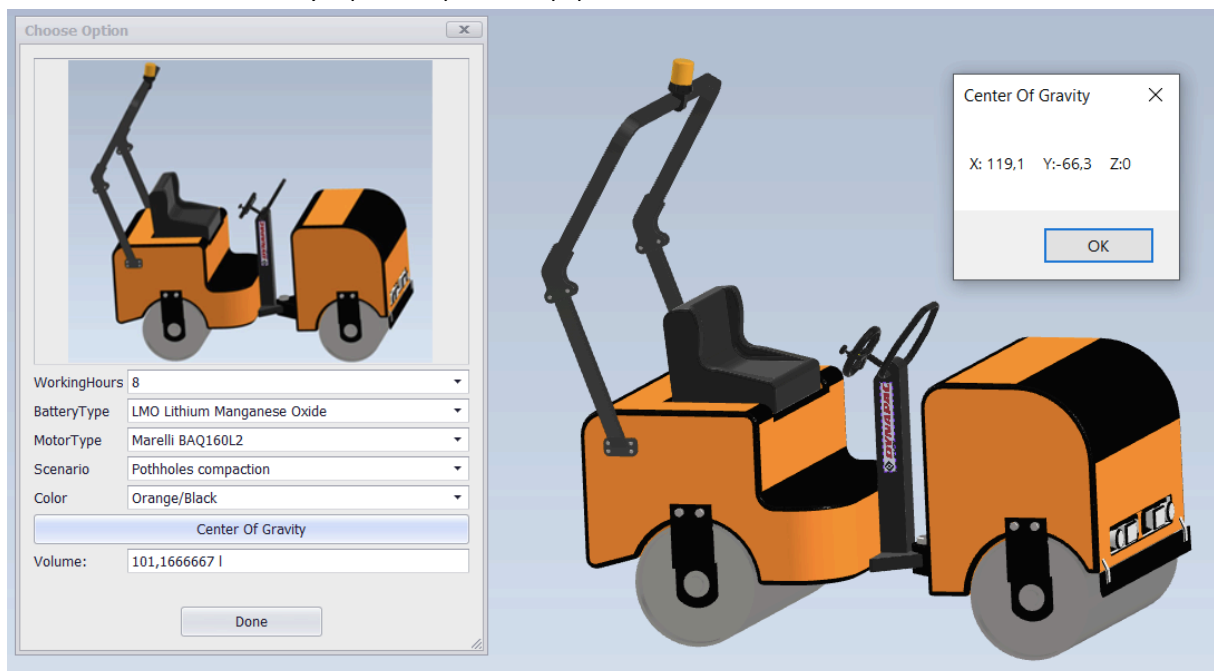
September-October (8 weeks)

Deadline for project proposal submission: Aug 20th.

Possible Project topics

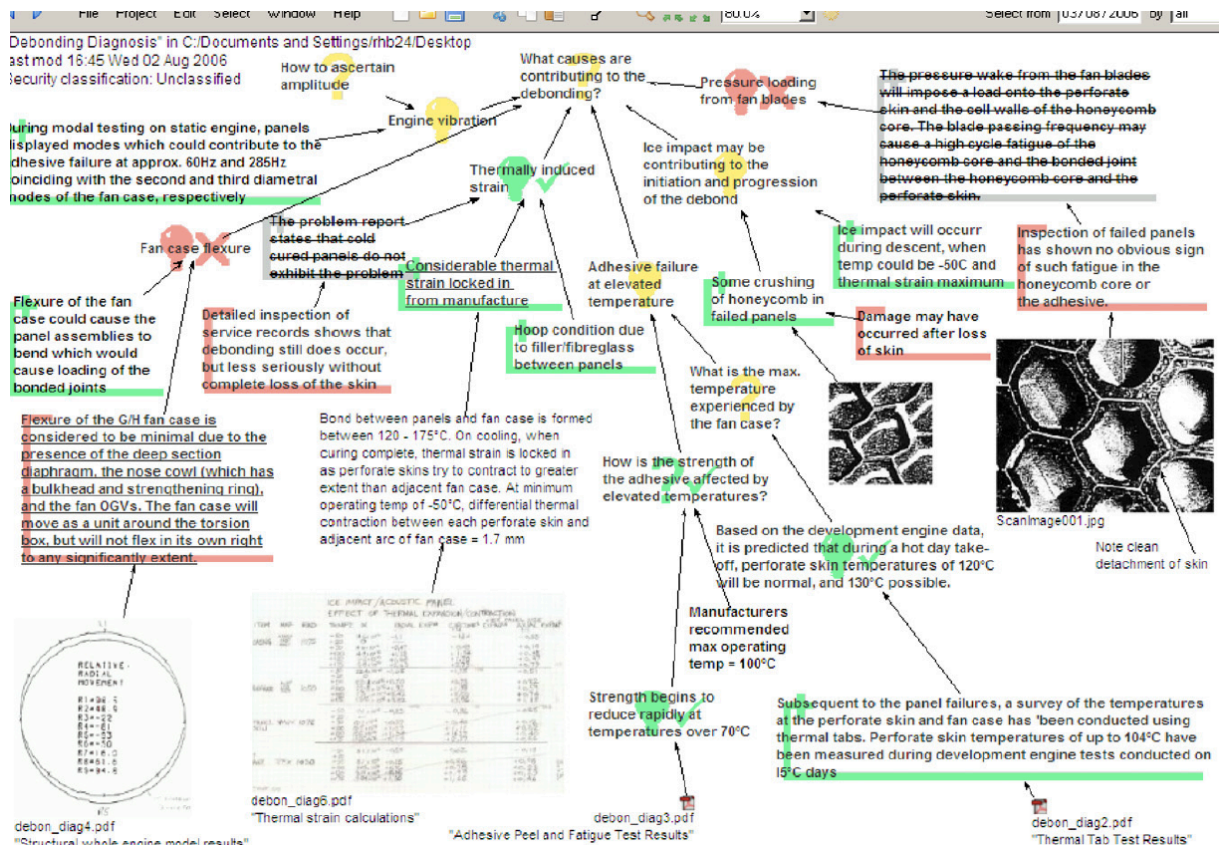
Design Automation

Application of Design Automation capabilities (iLogic in the Autodesk Inventor software tool) for the automatic generation of 3D Cad models generation. Here below an example related to the application of methods and tools in collaboration with Dynapac Compaction Equipment.



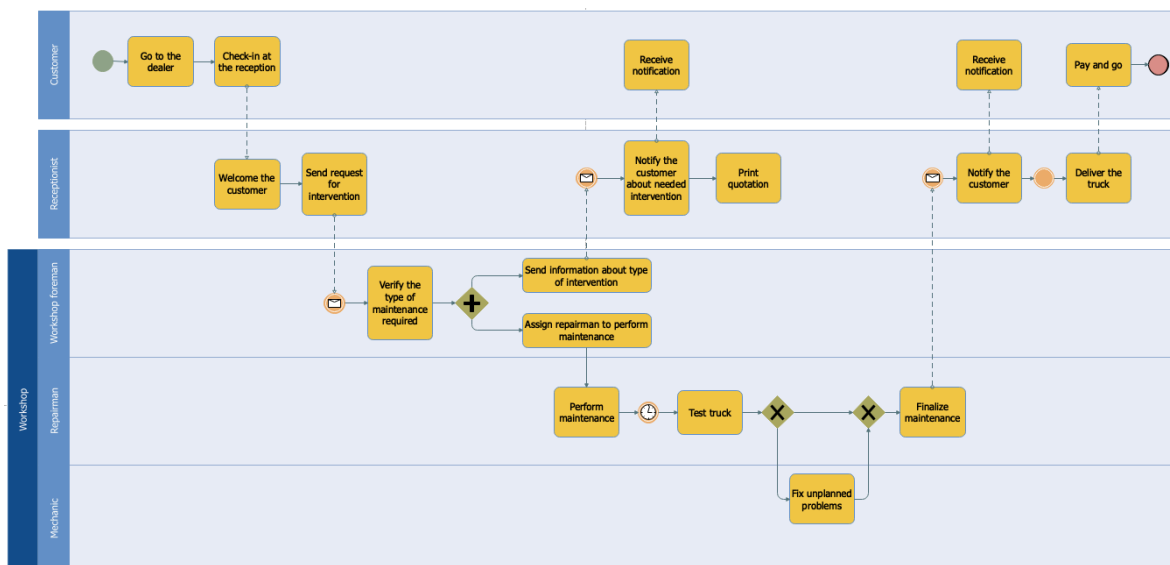
Knowledge management

Application of the Issue Based Information System (IBIS) and Design Rationale Editor (DRED, below) techniques to capture and share knowledge from documents and reports in a lightweight and visual format.



Process modelling using BPMN and IDEF0

Application of the Business Process Model and Notation and of the IDEF0 techniques to describe input-output relationships (and responsibilities) related to manufacturing and service processes. Here below an example related to a shop floor for heavy duty trucks.



Process simulation in Discrete Events

Application of Discrete Event simulation techniques to calculate the KPIs related to different industrial processes, from manufacturing to maintenance to service. Here below an example from a project conducted with a road compaction equipment company, aiming at simulating the performances of a testing facility.

