Laboratory of Digital Prototype

Principal goals and activities

The mission of the laboratory is to assist computational design and simulation. The site offers a number of modern CA-technologies (CAD, CAE, FEA, etc.), that enable to design, analyse, optimise and visualise digital prototypes of machines and their parts.

Specific instruments and outcomes

Support to design activities
High-performance workstations, including peripherals for visualisation of the results of the projects being investigated:
- CreoParametric
- Catia
- Autodesk Inventor
- SpaceClaim Direct Modeller

Support to calculations
- CreoSimulate
- Autodesk Simulation
- Msc. Adams
- Matlab
- Ansys Workbench with Electromagnetic suite (magnetic and electric fields)

General focus of laboratory

- Preparation of 3D models of machines and equipment.
- Analysis and optimisation of parts and their sets using the finite element method.
- Simulation and optimisation of mechanisms.
- Verification of mathematical models using experiments.
- Design of mechanisms.
- Investigation of magnetic and electric fields using FEM.

Offer of technology and expertise

- Modelling of dynamic properties and behaviour of machines and mechanisms while considering solid and flexible bodies.
- Structural analysis and optimisations using FEM.
- Analysis and optimisation of magnetic and electrostatic field.
- Problem solving in design of mechanisms (synthesis, kinematic and dynamic analysis, simulation, and optimisation).
- Preparation of drawings and documents.