

Machine elements

Introducing

Description

3 parts :

- First on the modeling of a mechanical architecture using multiphysics simulation software: Making the model/real link, parameters, validation of the model and exploitation of the results
 - A second on kinematic modeling of a complex system (kinematic diagram, hyperstatism, equivalent connections)
 - A final part on design and sizing of mechanical systems. We will focus on actuators (cylinders and motors) and pivot connections.
- A project, carried out in small groups over the entire semester, will complete and reinforce knowledges acquired in previous parts.
- Disassembly of gearboxes and differentials during practical work sessions

Objectives

Student must be able to :

- Valid a simulation model and exploit results.
- Analyze a technological system from the real object (behavior during different phases of use, identify components ensuring the different functions, etc.), design its kinematic and architectural diagram in 3D, calculate and possibly modify its degree of hyperstatism.
- Choose an actuator (technology and sizing)
- Design and size a pivot connection with radial contact

bearings (all types of external loads)
- Create a dimension chain

Necessary prerequisites

Mechanical drawings
Mechanic (Kinematic connections, PFS, PFD)
Mechanical technology

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

 Toulouse