

Faculty of Applied Sciences



MECA2953 Kinematics and dynamics of machinery.

[22.5h+7.5h exercises] 3 credits

This course is not taught in 2006-2007

This course is taught in the 2nd semester

Teacher(s): David Johnson
Language: French
Level: Second cycle

Aims

Provide students with the basic knowledge required to understand common mechanisms and the main problems arising in machine dynamics.

Main themes

Basic course in machine theory :

- Study of most common mechanisms
- Investigation of main dynamic features of machinery.

Content and teaching methods

Kinematics :

- Basic theoretical kinematics
- Pairs, kinematical chains
- Articulated systems, 4-bar systems, Cardan joints
- Cams
- Rolling contact mechanisms, planetary systems
- Plane and 3-D gears.

Friction and assemblies :

- Friction, static and sliding friction, rolling friction
- Fixed and moving assemblies
- Joints, bearings, dead angles
- Brakes and clutches
- Couplings
- Bands and belts, belt drives, chain drives.

Dynamics of machinery :

- Equivalent masses
- Inertia forces : balancing, speed fluctuations (flywheels), critical speeds (basics).

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

None.

Other credits in programs

FSA13BA Troisième année de bachelier en sciences de l'ingénieur, (3 credits)
 orientation ingénieur civil