



Faculty of Applied Sciences

MECA2330 Machine component design.

[30h+30h exercises] 5 credits

This course is taught in the 2nd semester

Teacher(s): David Johnson, Benoît Raucent (coord.)
Language: French
Level: Second cycle

Aims

Teach students to design all types of current machine components.
 Develop their know-how as regards synthesis and setting-up of simple models allowing final dimensioning.

Main themes

Basics of dimensioning.
 Dimensioning criteria (static and dynamic strength, deformation, wear, corrosion, #)
 Description and modelling of machine components.

Content and teaching methods

Philosophy of machine component design and review of basic prerequisites.
 Dimensioning of machine components :
 - Fixed assemblies (bolts, binding, welding, #)
 - Moving assemblies (journal bearings, lubrication, roller bearings, #)
 - Transmissions and intermittent assemblies (power screws, gears, clutches, brakes, belts, chains, springs, hydraulic transmissions, #)
 Various practical problems are studied during tutorials.

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

Prerequisites :
 Kinematics and dynamics of machinery (MECA 2795), design of machinery (MECA 2825), elasticity, materials science.
 Reference (compulsory textbook) :
 R.C. Juvinall and K.M. Marshek Fundamentals of Machine Component Design, Wiley, 1991
 Assessment :
 two-tier exam : theory (no reference books allowed), problems (with reference books).

Other credits in programs

ELME23/M	Troisième année du programme conduisant au grade d'ingénieur civil électro-mécanicien (mécatronique)	(5 credits)
MECA22	Deuxième année du programme conduisant au grade d'ingénieur civil mécanicien	(5 credits)