Faculté d'ingénierie biologique, agronomique et environnementale

AGRO

BRES2107 Résistance des matériaux

[30h+30h exercises] 5 credits

Teacher(s): David Johnson, Benoît Raucent, Jean-François Thimus
Language: french
Level: 2nd cycle course

Aims

At the end of the course, the student must be able :
- to understand the theories describing the behaviour of materials submitted to mechanical constraints ;
- to select the most appropriate materials for a given application; and
- to apply the theory to calculate pieces of machines such as used in the construction of mechanical systems for power transmission and for the control of hydraulic structures.

Main themes

a) Principle of resistance of materials : constraints in the materials, traction, compression, flexion
b) Calculation methods for static and dynamic analysis of machines
c) Materials used in machine construction
d) Calculation of machine pieces
e) Elements of machinery
f) Application of numerical methods for machine design
g) Exercices
- Computer room exercices on the design of machine pieces
- Material tests in the laboratory
- Computer aided design

Other credits in programs

BIR22/7A	Deuxième année du programme conduisant au grade de bio-ingénieur : Sciences agronomiques (Ressources en eau et en sol)	(5 credits)	Mandatory
BIR22/7E	Deuxième année du programme conduisant au grade de bio-ingénieur : Sciences et technologie de l'environnement (Ressources en eau et en sol)	(5 credits)	Mandatory