

Faculty of Biological, Agronomic and Environmental Engineering

BRES2205 Clay and solid constructions

[22.5h+22.5h exercises] 4 credits

This course is taught in the 2nd semester

Teacher(s): Sébastien Lambot
Language: French
Level: Second cycle

Aims

At the end of the course, the student will be able to :

- calculate frames with articulate isostatic nodes and rigid nodes
- dimension simple rectangular pavement and concrete pillars with a rectangular and T cross section
- master the principles of metallic construction assembly
- master the basics of soils mechanics needed for the design of earthen roads and dams
- calculate the stability of earthen dams
- design small hydraulic constructions and complementary structures

Main themes

- Conception and calculation of frames with rigid nodes (hyperstaticity degree, Gehler method for the determination of stresses in the frame and the deformation of simple frames, method of ?)
- Reinforced concrete technologies (constituents, physical and mechanical characteristics, composition, light concrete). Calculation of concrete (pillar subject to traction and simple compression, bar subject to flexion and shear stress with rectangular or T cross section, simple concrete pavement)
- Metallic construction assembly (design and calculation of soldered and ordinary / high resistance bolted assemblies)
- Preconstrained concrete pavement. Strongly curved parts. Rectangular, spherical, and cylindrical reservoirs.
- Elements of soil mechanics needed for the design of earthen roads, dams and retaining walls. Stability of dams.
- Design of small hydraulic works and complementary structures for water evacuation : small bridges, aqueducts, drainage, #

Other credits in programs

BIR23/7A	Troisième année du programme conduisant au grade de bio-ingénieur : Sciences agronomiques (Ressources en eau et en sol)	(4 credits)
BIR23/7E	Troisième année du programme conduisant au grade de bio-ingénieur : Sciences et technologie de l'environnement (Ressources en eau et en sol)	(4 credits)