PHYS2223 Physics of fluids II

[22.5h+7.5h exercises] 4.5 credits

This course is taught in the 1st semester

Teacher(s):	Eric Deleersnijder
Language:	French
Level:	Second cycle

Aims

Introducing the first and second principles of thermodynamics applied to a fluid and combining them with the material of the Fluid Physics I course to analyse the main natural and industrial fluid flowing regimes.

Main themes

1. Local equilibrium, equations of energy and entropy applicable to a fluid flow.
2. Characterization of different flow regimes (laminar flow, turbulent flow, Stokes regime, etc.)
3. Compressible flow : Bertouilli theorem generalized, wave shocks.
4. Turbulent flow, limit layer notions.
5. Fluid dynamics in a non-inertial referential, big scale rotation flow.

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

Prerequisites: the course PHYS 1121, Physics of fluids I, or equivalent.

Other credits in programs

FSA3DA	Diplôme d'études approfondies en sciences appliquées	(4.5 credits)	
MAP23	Troisième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(4.5 credits)	
PHYS21/T	Première licence en sciences physiques (Physique de la terre, de l'espace et du climat)	(4.5 credits)	Mandatory