



Faculté des sciences appliquées

FSA

MAPR2310 **Thermodynamics of fluid phase equilibria**

[15h+15h exercises] 3 credits

This course is taught in the 1st semester

Teacher(s): Fernand Thyron
Language: french
Level: 2nd cycle course

Aims

Introduction to the chemical thermodynamics of phase equilibria in solutions of non-electrolytes.

Main themes

- Thermodynamical properties of gases and their mixtures: the corresponding state principle, the virial state equation and the cubic state equations (Redlich-Kwong-Soave and Peng-Robinson), the mixing rules,
- The fugacities of gases and liquids and the Clapeyron equation,
- The thermodynamic properties of mixtures: partial molar properties changes of mixing, the ideal solution, the excess thermodynamic functions,
- The chemical potential and the activity and relationship with fugacity, the Gibbs-Duhem equation
- Models of the liquid phase: Scatchard-Hildebrand, Flory-Huggins, Van Laar, Wilson, NRTL, UNIQUAC and UNIFAC
- Study of the equilibria between vapour and liquid at low and high pressure, liquid-liquid equilibria and solid-liquid equilibria

Other credits in programs

INCH21	Première année du programme conduisant au grade d'ingénieur (3 credits) civil chimiste	Mandatory
INCH22	Deuxième année du programme conduisant au grade d'ingénieur civil chimiste (3 credits)	