



## 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:** Second cycle

### 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, FlorHuggins, 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

### Content and teaching methods

Nil

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

Nil

### Other credits in programs

<b>INCH21</b>	Première année du programme conduisant au grade d'ingénieur (3 credits) civil chimiste	Mandatory
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