Syllabus CHEM336

No	List of Topics	Contact Hours
1.	**1. NON IONIC SOLUTIONS**	14
	1.1 Some notions on the liquid properties **1.2. The simple mixtures** 1.2.1 The thermodynamic description of mixtures 1.2.2 The Partial molar quantities *a) Partial molar volume Vp* *b) Partial molar Gibbs energies* *c) The wider significance of the chemical potential* *d) The Gibbs Duhem equation* **1.3 The Chemical potential of liquids** 1.3.1 Ideal solutions 1.3.2 Ideal-dilute solutions *Exercises* **1.4 Ideal and non ideal solutions of non-electrolyte** 1.4.1 Ideal solutions 1.4.2 Excess functions and regular solutions *Exercises* **1.5 Colligative properties** 1.5.1 The commun features of colligative properties 1.5.2 The elevation of boiling point 1.5.3 The depression of freezing point 1.5.4 The solubility 1.5.5 The Osmosis *Exercises* **1.6 Activities of solvent and solute** 1.6.1 Ideal-dilute solutions 1.6.2 Real solutes 1.6.3 Activities in terms of molalities 1.6.4 The biological standard state *Exercises* **1. 7 Activities coefficient** 1.7.1 The activities of regular solutions 1.7.2 Mean activity coefficients *Exercises*	
	MED term 1	2
2	**2. Phase Diagrams**	8
	2.1 Vapor pressure diagrams	

	2. 1.1 The composition of the vapor 2. 1.2 The interpretation of the diagrams 2.1.3 The level rule Exercises **2.2 Liquid- vapor phase diagrams** 2.2.1 The distillation of mixtures 2..2.2 Azeotropes 2. 2.3 Immiscible liquids *Exercises* 2.3 **Liquid-liquid phase diagrams** 2.3.1 Phase separation 2.3.2 Critical solution temperatures 2.3.3 The distillation of partially miscible liquids *Exercises* **2.4 Liquid-solid phase diagrams** 2.4.1 Eutectics 2.4.2 Reacting systems 2.4.3 Incongruent melting *Exercises*	
	MED term 2	2
3	**IONIC SOLUTIONS**	8
	3.1 Ideal ionic solutions	
	3.1.1 Definitions	
	3.1.2 Colligative properties	
	3.2 Chemical potential and activity coefficients	
	4.2.1 Chemical potential	
	4.2.2 Excess chemical potentials for real ionic solutions	
	General revision	2
	Final exam	3
Total		37