Hinc patriam sustinet
Instituto Superior de Agronomia
Universidade Técnica de Lisboa

Rheology and Food Structure

Coordinator: Isabel Sousa **Preceding units:** PHYSICS

Program	Time	Teacher
Main physical properties of food. Practical determinations on the lab and implications to food quality control, product development, and industrial plant design. Rheology (definition) relevance to Food Science and Engineering. General concepts related to fundamental Rheology, rheological models, constitutive equations, main parameters, experimental tests: fundamental and empirical measurements.	**13h** **17h**	**Isabel Sousa**
Phase transitions in Food: glassy state, crystallization, gelatinization and gelification, fluidization. Implications on texture/consistency characteristics of food and shelf life. Food Structure its creation and evaluation: manipulation of biopolymers to control food structure. Monitoring structure building up/breakdown. Texture/consistency from the quality/perception point of view. Sensory evaluation and instrumental measurements.	**13h** **13h**	**Isabel Sousa**
Case studies: Food emulsions; Food gels; Biscuits and cookies; Edible active biofilms. Based on the PhD's work developed at the lab. Practical applications of the flow situations in Industry	**13h** **8h**	**Doutorados que não são do ISA:** **Anabela Raymundo** **Cristiana Nunes** **Fátima Piteira**

Calculations of pumping needs, tube diameters, etc. Based on the Bernoulli equation for non-Newtonian fluids.		**Cristina Pintado** **Bartolomeu Alvarenga**
Lab Project : working in the lab to solve specific situations to apply the acquired knowledge	**13h**	**Isabel Sousa**