Formulation

SCHOOL
Faculty of Science

CAMPUS
Belle-Beille

LEVEL
2nd year Master's degree

OPEN TO EXCHANGE STUDENTS
Yes

SEMESTER
Fall (S1)

- **Degree course:** Light, Molecules, Matter
- **Teaching unit:** UE2
- **Course language:** English
- **Duration (hours):** 35
- **ECTS:** 2
- **Teacher(s):** Mohammed BOUJTITA

Assessment:

- [x] Continuous assessment
- [ ] Final exam

Teaching methods:

[x] Lecture course	25	hours	[ ] Case study
[ ] Tutorial course		hours	[ ] Project
[x] Practical work	10	hours	

COURSE DESCRİPTİON

The main principles of the formulation:
- Generalities
- The classic components of mixtures (binders, solvents and diluents, pigments, fillers, additives, etc.)
- Formulation processes (solubilization, grinding, dispersion, ...)
- Physico-chemical parameters of the formulation (solubility, interfaces, wettability, CPV / CPVC, compatibility of mixtures, stabilization, particle size, etc.)

Case study: paint formulation - physicochemical formulation techniques and parameters; Methods of transfer from laboratory to industry. P. Thobie (CETIM Nantes)

OBJECTİVES

Formulation is a multidisciplinary science which consists in associating active materials or active principles and formulation auxiliaries (excipients, additives...) leading to a mixture answering a precise specification. After studying the physico-chemistry of dispersed media (colloidal suspensions, solutions, emulsions, etc.) and related analytical methods (spectroscopy, rheology, etc.), a focus will be devoted to mixtures for organic electronics.
The objective is to understand how to make a functional material printable (conductive, semiconductor or dielectric material, for example). This involves understanding the general principles of the formulation of a liquid, knowing the physico-chemical and rheological properties of liquids, in order to meet the specifications of the implementation processes on the one hand, and the requirements of the intended application, on the other hand.