

SUMMER SCHOOL SCIENTIFIC PROGRAM PROGRAMME SCIENTIFIQUE SUMMERSCHOOL

Cours/Courses : About 35.00H Crédits ECTS: 3.00

I. Manufacturing of decorative water-based paints





Jean-Pascal PHILIBERT

• Handling the raw materials for a white water-based paint (fillers, pigment, binder, additives)

- Realization of all the stages of the process
- Application on standard panels

• Quality control on decorative paint: - rheology / opacity / gloss / specific gravity / dry content..

Analysis of the results

II. Practical work in colorimetry



OBJECTIVE

Visual evaluation, measurements, color matching

CONTENT

- Presentation of basis in colorimetry: observation conditions (lights)
- Color characteristics (hue, chroma, lightness)
- Presentation of colorimetry softwares:
 - > Quality control: interpretation of colorimetry data (Cielab color space)
 - Formulation- correction: use a pigments file to match a color

Practical work : reproduce a target color using colorimetric softwares and lights cabin





Dominique CORGER

Françoise CACHOZ

and

III. Textile dyeing and finishing : treatments on cotton/polyester fabric





Fabien ROLAND

1/ Dyeing

- •To use a dyeing machine, type Jigger
- •To realize a dyeing recipe: influence of different products
- •To analyze the result: color, levelness with spectrophotocolorimeter measures

2/ Finishing with fluorocarbon-based repellents

•To use finishing machines, type padder and stenter frame

To realize a finishing recipe with fluorocarbon products
To analyze the result: control of water and oil repellency

3/ Visit of the textile platform to see different textile technologies and machines

- Spinning, weaving and knitting workshops
- Finishing and control laboratories

IV. Adhesives Formulation and application practicals





Sylvie DURDILLY

Manufacturing, application and controls of a wood adhesive with :

- Formulation of the adhesive
- Specifications
- The raw materials role
- Control of bonds (on the wood shear ample)
- Shear Test with a dynamometer

And :

- Application of a pressure sensitive adhesive
- Loop tack Test with a dynamometer

V. How to conceive a plastic piece ? From conception to manufacturing



Marine RUSSO

• How to choose a plastic material? : practical work on materials recognition

• How to conceive a piece? (demonstration on CAO/DAO softwares)

• The different transformation technics of plastic materials (+ demonstration in injection, thermoforming...)



VI. Analytical Chemistry





Pascale FILLON

• **Practical Work :** Gas chromatography : gas chromatography principle and concrete application on the analysis of a mixture of unknown solvents (separation , identification and quantification)

• **Practical Work :** Infrared spectrophotometry principle, sampling technics according to the product under analysis, highlight of major chemical bonds, identification of unknown polymers, concrete applications on any type of support (liquid, powder, plastic material, paint, textile, leather ...)

VII. Cosmetic

 > Skin care product Emulsion Oil/Water et Water/Oil
 > Make up product Lipstick

A) Emulsion: 4h

Skin Care Laboratory

1/ Formulation and characterization Oil/Water

- Formulation with different thickeners
- Formulation with different nature of surfactant
- Formulation with different oil phases
- Controls: pH, viscosity, centrifugation and microscope observations

2/ Formulation and characterization Water/Silicon

- Formulation basic formulation Water/Silicon
- Controls: viscosity, centrifugation and microscope observations

3/ Formulation and characterization sun care Water/Silicon

- Formulation: basic Sun care formulation Water/Silicon
- Controls: viscosity, centrifugation and microscope observations

B) Lipstick : 3h

Formulation and characterization of a Lipstick

- Formulation with different waxes
- Formulation with different oil phases
- Controls : sensorial tests, breaking point



Pascale COTTIN

