



Lycée
Saint Louis

Lycée des métiers
de la Biologie et de la Chimie

BTS CHEMISTRY
a 2-year technical degree
in Chemistry

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Purpose of this program

BTS Chemistry is a first higher education degree that ends a two-year-training program. It is recognized by a national diploma examination.

Candidates with a science baccalaureate are eligible to this training.

The students are prepared for direct entry into professional practice as well as for further studies at university or at schools of chemistry engineering.

Courses

The courses provide general education in :

- Applied mathematics
- Computing science and information technology
- French/ communication
- English

And advanced studies in :

- Organic and inorganic chemistry
- Analytical chemistry and modern spectroscopic investigations
- Formulation and applied physics as testing methods
- Quality Health Safety and Environment

The emphasis is on practical work :

Roughly one-third of the time is dedicated to lab activities so that the students develop their practical skills. They learn different types of analytical methods and techniques, perform laboratory procedures, synthesize organic compounds and polymers, apply separation technologies and knowledge of spectros-

copy to identify the products of the lab preparations. They learn and apply the general techniques of formulation of cleaning agents, emulsions, paints and coatings.

The students get a work experience thanks to a two-month internship during the second year.

Careers and sectors

At the end of their two-year – education, the students are able to become laboratory technicians (analytical chemists, physical chemists, separation chemists, formulation chemists, ...) as well as engineering technicians. They are able to perform the formulation, the analyses and syntheses of chemical products in many fields :

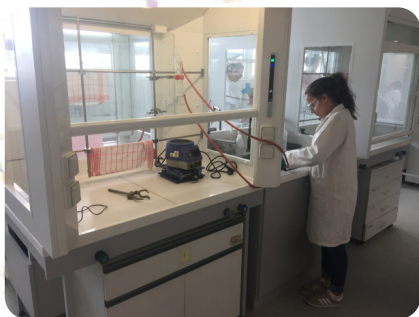
- Pharmaceuticals, cosmetics, agro-technology and food science, oenology, ...
- Petrochemistry, polymers, manufacture of organic fine chemicals, fertilizer industry, ...
- Paints, inks, varnishes and adhesives, ...
- Laboratories of expertise (public analyses, quality control, ...)
- Research laboratories (Universities, Research and Development)
- Building chemistry (bitumen, cement, glass, ceramics, ...)
- Paper and cardboard industry
- Waste treatment, recycling, water treatment, ...
- Energy production, batteries, nuclear industry, ...
- Metallurgy sector, aeronautical engineering, automobile industry, ...



BTS chemistry program

Mathematics

- Communicating skills in English and French
- Quality Health Safety Environment- Molecular orbitals



Synthesis :

- chemical bonding
- isomery
- reactivity
- functional group properties and reactions
- polyfunctional compounds
- macromolecules
- polymers
- thermochemistry (standard enthalpy, entropy and Gibbs free energy and spontaneity)
- kinetics

Analytical Chemistry :

- acid-base reactions
- oxidation-reduction reactions
- complexation reactions
- precipitation reactions
- metrology

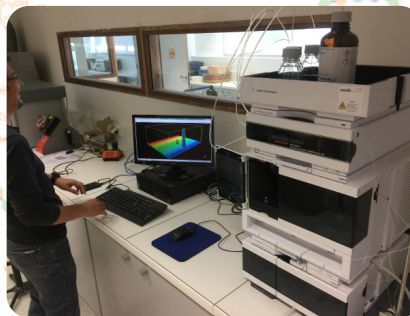


- quality control
- statistical skills for experimental design and analysis
- spectroscopies
- polarimetry
- mass spectroscopy
- MNR
- Xray emission and fluorescence)



Formulation :

- Product technical specifications
- Materials
- Calculation of formulas
- Surface tension
- Viscosity, rheology
- Emulsion formulation
- Paints and coatings
- Spectrocolorimetry for tint formulation
- Mechanical tests ...



Practical work :

- titrimetric methods and techniques, colourimetric titrations, potentiometric, conductimetric, spectrophotometric titrations

- Fourier Transform Infra Red Spectrophotometry, UV-visible spectrophotometry, atomic absorption spectrophotometry, atomic emission spectrophotometry
- voltammetry, amperometric methods, Karl Fischer titration
- chromatography (Thin Layer Chromatography, Gas Chromatography, High Performance Liquid Chromatography)
- quality control
- experimental design
- organic syntheses (preparation, purification, identification)
- separation techniques
- chemical engineering
- formulation chemistry (cleaning agents, care products, cosmetics, paints, ...)



- rheometry
- mechanical testing
- colour and appearance tests
- Unit operations in chemical process engineering (crystallization, distillation, extractions,...)

