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| **Identity card of the specialty**: Academic License: Analytical Chemistry |

**Level:**Licence

**Domain :**Science of the matter

**Sector:**Chemistry

**Speciality:**Analytical Chemistry

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| **1- Location of the training:** |

**Faculty (or Institute)**: Faculty of Exact Sciences

**Department**: Science of the matter

References of the authorization decree of the diploma to be prepared:**Order n°793 of 05/08/2015**

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| **2- External partners:** |

**Companies and other socio-economic partners**: Company names

**International partners**: name of international partners

**Other partner establishments**: names of other companies, organisations, etc.

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| **3- General organization of the training: position of the project** |

Common base of the field: SM (1st year) + L2 Chemistry > L3 Analytical Chemistry

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| **4- Context of the training:** |

For decades and in all sectors of activity, Laboratories and industries have been generating masses of data that need to be processed and enhanced to ensure process optimization and Quality assurance. In the field of analysis, the deployment of new spectroscopic methods, fast and non-destructive, has brought out a significant need among professionals for skills in data processing. The socio-economic partnership covers this branch of chemistry whose forms of partnership are reflected in different actions: training, internships, recruitment, etc.

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| **5- Objectives of the training:** |

The main objectives of this training are the acquisition and mastery of advanced analysis techniques implemented in all branches of chemistry and more specifically in analysis and testing laboratories. At the end of the training, the graduate is able to define, carry out and optimize physico-chemical analyses. The training is organized according to the following main axes:

* acquisition of the theoretical foundations and practical application criteria of analytical chemistry methods (chromatographic techniques, atomic and molecular spectroscopy, mass spectrometry, structural analysis, electrochemistry and thermal analysis);
* the acquisition of knowledge and mastery of analytical chemistry methods essential for the identification and quantification of the chemical constituent species of the environment (atmosphere, hydrosphere and lithosphere) and of the various chemical pollutants of organic and inorganic origin ;
* the acquisition of sufficient knowledge of analytical instrumentation allowing the management and maintenance of a fleet of equipment.

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| **6- Profiles and skills targeted:** |

During this license course, the student will be able to combine general knowledge with skills. Thus, most chemistry teaching units offer practical work, and at the end of the course, the learner must:

* be able to select the most appropriate technique to solve an analytical problem,
* master the sampling and preparation of samples for analysis,
* know how to apply a quality approach within a laboratory,
* take a critical look at the analysis results,
* master analytical spectroscopic techniques (UV-Visible, IR, atomic absorption, flame emission), chromatography (gas, HPLC, ion), LC-MS NMR coupling, mass spectrometry, morphological and structural analysis techniques for solids (particle size , BET, Zeta potential, electron microscopy, X-ray diffraction, X-ray fluorescence), calorimetric and gravimetric thermal analyzes (DSC, ATG), titrations.
* understand the physical and chemical phenomena involved in each analytical technique.
* master the operation of the equipment, know how to install it, repair it and carry out its maintenance.

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| **7- Local, regional and national employability potential:** |

The analytical chemistry license gives access to master's training. Graduates can also obtain employment mainly as analytical laboratory technicians in the following structures:

1. Analysis departments in industrial groups,

2. Analysis laboratories (public and private),

3. Analytical Chemistry Instrumentation Companies,

4. Control and certification body,

5. Pollution analysis and treatment companies (basin agencies, landfills),

6. Services of the administrations and local authorities in charge of the management, protection and restoration of natural areas.