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| **Identity card of the specialty**: Academic License: Energy Physics |

**Level:**Licence

**Domain:**Science of the matter

**Sector:**Physical

**Speciality:**Energy Physics

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

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

**Department**: Science of the matter

References of the decree authorizing the diploma to be prepared: Decree 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 Physics > L3 Energy Physics

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

The energy production sector involves a wide range of professions and is one of the most important recruiters. Most of these structures devote a large part of their activities to research and development studies in the field of renewable energies.

This degree is part of a training and research program on sustainable development and environmental protection. Currently, fossil fuels are consumed much faster than they are formed in nature.

It is recognized that sustainable economic development presupposes an increased use of renewable energies, on the one hand because they are potentially inexhaustible, on the other hand because they respect the environment. Solar, wind, hydro, geothermal and biomass energy are the most common forms.

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

This course offers a base of theoretical knowledge, on which rests the discipline of energy physics, in this case, fluid mechanics, heat transfer, mass transfer, thermodynamics, etc. Its main objective is to develop skills in trades related to the production, transformation, use and conversion of energy in all its forms. The student must be able to make the energy balance of any system, to assess and advise in this area. The training fundamentally relies on heat transfer, combustion, fluid mechanics, numerical analysis and programming to achieve its ends and highlights various applications. This training focuses more particularly on the possibilities of using and developing unconventional energies such as solar energy, wind energy and others. Emphasis will be placed on the most modern techniques to achieve this.

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

At the end of the training, the trained students will have acquired: advanced knowledge in heat transfer and fluid mechanics, mastery of the computer tool and digital modeling, knowledge of the elements of development of benches experience and mastery of measurement techniques specific to energetics, knowledge of energy conversion systems and energy production and transformation systems.

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

Training in energy physics is a popular commodity in many sectors and graduates are quickly recruited. We cite various job opportunities: companies producing and consuming large amounts of energy: Electricity, gas, cement works, glass works, metallurgy, hydrocarbons, refineries, etc.; research centers in energy, new and renewable energies; the structures in charge of the development and monitoring of renewable or combined conventional and renewable energy projects; gas and liquefied natural gas production companies; the education sector for the teaching of physics at the CEM, high school; Energy Advisor and Energy Expertise; energetic audience.

Energy: Hydrocarbons (upstream and downstream), renewable energies, environment and bioenergy, water (transport and distribution, wastewater treatment and desalination), transport of liquids and gases, mixtures of fluids, the separation of mixtures.

Education, Industry (energy, mechanics, steel, aeronautics, civil engineering,….), Research (fundamental and applied), ………