**CATALOGUE OF KNOWLEDGE**

**1. NAME OF THE SUBJECT**

**PRACTICAL EDUCATION: RENEWABLE ENERGY SOURCES**

**2. GENERAL OBJECTIVES**

The overall objectives of the course are:

• developing a professional identity, professional responsibility and a positive attitude to energy, environment and management,

• deepening knowledge about renewable energy sources and technologies,

• developing habits for regular monitoring of the development, the use of expert sources and methods of energy generation,

• training of professional identity, professionalism and accountability in the use of energy,

• developing a rational relationship to the use of energy,

• knowledge of the principles of energy efficiency,

• identifying the impact of energy on the environment.

**3. THE SUBJECT SPECIFIC COMPETENCES**

In the course the student acquires the following competences in addition to the generic subject specific competences:

• acting professionally, responsibly and professionally in the field of energy;

• participating in the introduction of appropriate technological processes for the use of RES; (Installation of small hydro power plants, wind turbines, photovoltaics, geothermal wells, etc.);

• implementing green renewable energy technologies;

• knowing the principles of sustainable renewable energy sources (RES);

• recognising the impact of each technology on the environment;

• assessing the short- and long-term effects of the use of RES on the environment;

• participating in the drafting of national and international projects;

• informing the public about the importance of using renewable and other alternative energy sources and materials;

• carrying out monitoring and biomonitoring of the environment;

• assessing the environmental impacts of each technology.

**4. OPERATIONAL OBJECTIVES**

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| **INFORMATIVE OBJECTIVES** | **FORMATIVE OBJECTIVES** |
| Student: | |
| Efficient use of renewable energy sources | |
| * classifies renewable energy sources; * identifies the main characteristics of geothermal energy, solar energy, biomass, biogas, biodiesel, justify the strengths and weaknesses of each renewable energy technology;   enumerates and explains the parameters that are relevant for the selection of individual renewable energy technologies;   * has knowledge of the operation of energy facilities and possible side-effects on the environment; * knows the principles of energy efficiency; * realises the process of implementation of RES technologies; | * draws up an operational plan for the optimal use of renewable energy sources in the region or the municipality; * establishes a strategy for water management; * establishes a strategy for producing biofuels; * samples waste water and materials; * evaluates the biodegradable waste to make preparations for composting or biogas processing; * includes the views of experts in the field of eco-remediations, remediation of water, air and soil; * keeps records and prepares working papers in the field of management of renewable energy sources; * participates in the preparation of plans, opinions and consents for the operation of individual renewable energy technologies; * produces an estimate of the suitability and capacity of RES facilities; * draws up the energy balance of the building, domestic households and rationalises energy consumption by introducing renewable energy sources; * makes calculations of the sums of the selected technology; |
| RES and environmental impacts | |
| * knows the principles, technologies, and environmental monitoring procedures; * knowledge of EIA and SEA; * recognises elements of the building energy performance certificate; * knows the legality and the elements of the project work; * knows the ways of informing and raising public awareness about the importance of the introduction of RES technologies. | - carries out the procedure of technology monitoring of ecosystems, and of natural values and analyses the impacts of RES technologies on the environment and human health;  -economically evaluates investments in RES (on concrete or simulated case);  - participates in the implementation of development projects and research;  -informs and raises public awareness of the importance of using alternative energy sources and materials. |

**5. OBLIGATIONS OF STUDENTS AND SPECIAL FEATURES IN PERFORMANCE**

The total of 310 hours of the student's work in the company amounts to 10 credits. It is required that the presentation of the report on a practical training under the mentorship of the company and mentor at school is carried out.