Evaluation of the project curriculum MESA

Ljubljana, 22 September 2013

Slovenia promotes electric vehicles through various actions and programmes, because this can help to fulfil international commitment regarding emission reduction and efficient energy use.

Renewable energy Action Plan 2010-2020 must be mentioned, because it states that one of Slovenia's priorities is to introduce biofuels and other renewable energy sources to traffic and agriculture as well as to introduce electric vehicles. Also the National Energy Efficiency Action Plan 2008-2016, in the framework of its actions to encourage efficient use and renewable energy sources in households, indicates and stimulates passenger vehicles with electric or hybrid drive via Eco fund.

This shows that Slovenia is promoting the use of renewable energy sources also for traffic with the help of different actions. The purpose of these actions is also to encourage efficient vehicles, efficient style of driving, electric vehicles and hydrogen vehicles as well as charging infrastructure. We are preparing new actions and directions that define the field of electric cars as one of important ones.

These actions and international commitments have a technical and economic significance. The theoretical analyses of different vehicles have so far showed that the amount of energy needed for every kilometre by kick scooter or bicycle is around 10 Wh, by scooter 20 Wh, by bus or small city bus 50 Wh and by a passenger car over 100 Wh per kilometre. Parallel to these numbers also also emissions of greenhouse gases and price of the ride. Electrically-propelled systems are economical, friendly to the environment and the people. Their absolute impact would still be relatively small for Slovenian grid, even if their use would significantly increase, because they use little energy. Modern batteries, hydrogen technologies and fuel cells as well as hybrid systems are becoming more and more established as new energy sources in the vehicles. Particular types of energy sources have specific features, so sometimes they are combined into innovative architectural pieces in the propulsion systems. The common feature of all these new sources is environmentally friendly functioning with less energy consumption, less emissions, less noise, less used materials and bigger energy efficiency in comparison to internal combustion engines.

Internationally supported projects like MESA are a part of mosaic to support the policy of promoting electric vehicles and they are very welcome.

Regarding the project curriculum MESA we can say that the professional and methodological basis for the implementation of the project is good. I paid a lot of attention to the evaluation and I would like to command the seminars, which were very nicely presented.

It can be seen from the project curriculum MESA that the project is target-oriented. From the viewpoint of the learning process, this encourages qualification of candidates for successful work in diverse, changeable and knowledge-based working environment. It also gives them appropriate basis for further studying and training to cover the needs and demands of the labour market regarding the field of electric cars.

It is also apparent that the aim of the project was followed as closely as possible. I can confirm that they successfully solved the basic question - the suitability of content of the

presented aims in relation to project demands and also to professional standards, aims of educational programmes and curriculum from that field.

The project curriculum presents in a neat way, how the project MESA enables gaining knowledge, which relates to the needs of the current and future labour market. At the same time it opens possibilities for future professional career and for developing practical skills, work skills and habits on the basis of theory.

The presented curriculum shows that the aim of the education on the basis of this project was to enable the participants to understand the work, they are doing, and to give them basic knowledge for further education. Educational goals are very clearly set, so an individual can understand them without any double meaning. The presented seminars prove, that the professional modules base their practical work on theory. Competences, knowledge and skills, which are included in the project, give sufficient basis to continue education in this field.

It is evident that all the participants had the opportunity to develop creativity, innovation and readiness for lifelong learning. They could develop skills for independent and responsible actions and they are able to produce particular parts and can cooperate, when professional problems are being solved. The defined competences, developed in the framework of various professional modules as part of the project, are mostly suitable, i.e. important for the qualification of participants.

As encouragement I would suggest that the curriculum states, which fields are seen as more demanding and would need additional analysis from the pedagogic as well as from technical point of view. By latter I mean the direction of development of the electric car field.

For conclusion I would like to stress that this curriculum proves, that the programme's content is suitable and that the informative and formative educational goals of the project were reached in a suitable way. There are also possibilities for further education, for connecting different types of knowledge and for surpassing school subjects breakdown. The project has surely enabled participants greater mobility, more knowledge and skills to continue education in this field. I see the project curriculum MESA as very sensible and appropriately presented. I believe that the presented curriculum has a relevant and sufficient content and is current to teach high-school students of secondary technical schools.

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With the support of the Lifelong Learning Programme of the European Union.
This project has been funded with support from the European Commission.