# FEEDBACK FROM THE MACEDONIAN PILOT

Following the finalization of the English version of the online course, the course was translated into Macedonian.  The Macedonian version of the course is based on the English course but with some minor modifications that relate to the specific agricultural profile of that country.

Starting from April 1st until May 6th, 20 teachers from seven VET schools in North Macedonia, enrolled in the pilot course.

The pilot began with a contact day in order to provide the teachers with the basic skills of working, navigating, and learning on the delivery platform, and also to learn about each other. For the first week - from April 1st to April 8th, the Module1 (*Teaching in the 21st Century)* pilot was run.

During the pilot of Module 1, the participants had the opportunity to introduce themselves via the Forum on the Moodle learning platform, and to discuss the challenges and assignments with their mentor, Mr. Ljupcho Toshev. Module 1 introduced and used contemporary, innovative pedagogical methods - including project/based learning and the flipped classroom model - thereby providing an opportunity for the participants to try out the methods that they learned about during the course.

After successfully implementing Module1, the implementation of the pilot phase of Module2 (*European Strategies and Initiatives for e-Agriculture) started* on April 10th.  The goal of this second module was to inform teachers about the importance of a strategic approach to the development of e-agriculture in the EU, and to detail the main steps and components of the process, including standards and formats. The implementation of the pilot phase of Module2 ran until April 17th with Mr. Martin Micevski as the mentor.

Finally, from April 22nd until May 6th, the pilot phase of Module 3 (*Digital systems within Agriculture 4.0)* was implemented. The aim of the third module was to encourage a teaching approach fostering lifelong learning skills, promoting intellectual curiosity, and developing competencies in innovative agriculture technologies.  In this module, teachers had the opportunity to learn about the technology used in digital farming, how ICT can improve the overall agricultural production, and to analyze and compare different approaches in agriculture using IoT technologies.  Through the content of this module, the teachers were able to develop a greater understanding of the benefits, trends, methods and practices of different applicative solutions in Agriculture 4.0.  The mentor for the Module 3 was Mr. Blagoja Mukanov.

Out of 20 participants, 16 teachers from six different VET schools successfully completed the course. In order to successfully complete the course, 80 points were required out of a total of 100 points. Participants in the course gained points by completing the assignments and quizzes in each of the three modules. All participants who successfully passed the course were given certificates by the Agriteach 4.0 consortium.

The general feedback from the participants, regarding the course was very positive. Some of the teachers had previous experience with Moodle and similar educational tools, while others used it for the first time.

The participants agreed that learning through Moodle and other similar learning management system stimulates even the least interested students.  All participants also agreed that the online course had a significant impact in their professional development and after completing the course, they are ready to implement some of the new methodologies learned in Module 1.

The biggest limitation that the teachers faced was the unstable internet connection in some of the schools and the old, poorly maintained or inadequate computer systems in the schools.

The course concluded with another contact day during which participants were given the opportunity to discuss any problems, put questions to the tutors, and to debate possible sustainability plans for the future.

## PILOT TRAINING IN HUNGARY

After completing the three modules of the curriculum in each of the three target languages (EN, HU, MK) they were uploaded to the project's Moodle e-learning framework.  An initial pilot training course was launched for Hungarian agricultural vocational schools. The "Teaching agricultural informatics in agricultural vocational training" course started with an information day in Gödöllő on 15 February 2019.

Applications for the Information Day was conducted via an online registration form.  In total 46 teachers from many different parts of the country attended the information day event.

In addition to presenting the aims of the project and details of the planned training, a number of lectures were also given by expert practitioners in the field of agricultural informatics, including Agromechatronics, Farming 4.0, Data Collection in Precision Agriculture, and  Precision Animal Husbandry.

For the first of the three project modules - Teaching in the 21st century in Agricultural Vocational Schools - lectures on web-based tools, the flipped classroom model, and a methodological renewal of 21st century education were presented.

Following this information day, a total of 63 teachers from 22 VET schools across the country applied for the pilot training course itself.  See the following map for the distribution of these schools.
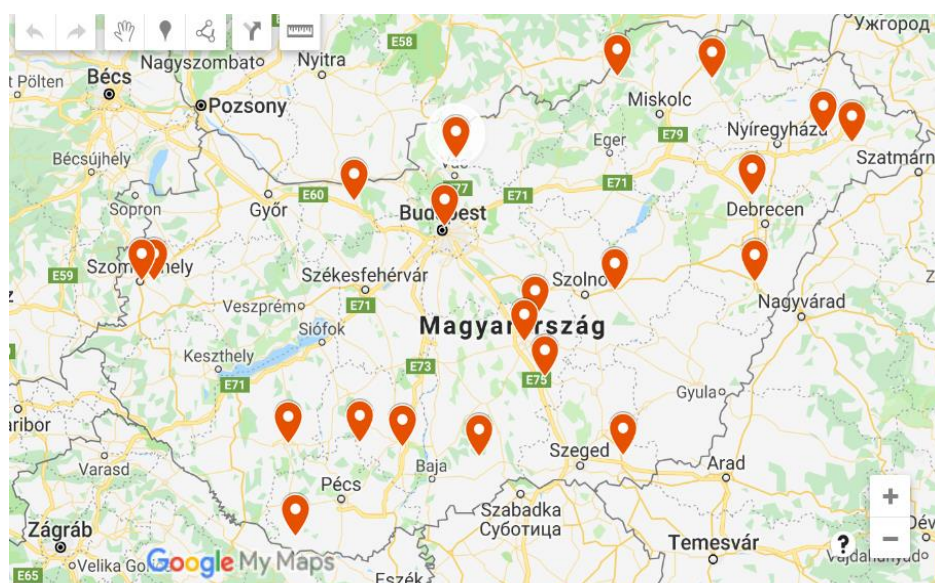
The pilot training was conducted wholly online with the learning activities being led by professional trainers / tutors.  The training materials for the three pilot modules were covered according to the following schedule.

Module 1. Teaching in the 21st century: 25 February- 10 March, 2 weeks
Module 2. European Strategies & E-agriculture Initiatives: 11 March - 17 March, 1 week
Module 3. Digital systems within Agriculture 4.0: 18 March- 26 April, 6 weeks

Each module included:

- an introductory video for the module
- a description of the learning aims of the module
- a learning guide
- a module assignment.

The final assignments were mostly taken from the practical exercises within the given topic.

On the online platform, the participants were able to communicate with each other and with the tutors, to exchange ideas or to potentially ask for help.  Tutors also posed questions related to the topics within the modules to encourage active participation and to share in valuable experiences from the teachers' own practice.

In addition, and partly as an experiment, an online 'webinar' was held by one of the professional tutors - Zsófia Veres, an experienced agricultural engineer in environmental management - about AgLeader SMS, a user-friendly software application specifically used for precision agriculture.  It was suitable for the teachers as it required only a basic knowledge of GIS principles.

In order to successfully complete their training, participants had to complete the following tasks (with the stated weightings).

- Show active collaboration on the online learning platform (10%)

- An assignment to be submitted at the end of Module 1 (20%)

- An assignment to be submitted at the end of Module 2 (20%)

- Module 3 – the Closing Assignment (50%)

The Closing Assignment for the overall course comprised:

1. Choosing an appropriate ICT tool and / or method from the first module

2. Developing one's own curriculum for teaching Module 2 or 3

3. Preparing a Lesson Plan / Teaching / reflection.

The training was successfully completed by 51 of the teachers, each of whom received:

- a certificate of 'Innovative Teacher, Creative Classroom', accredited within the Hungarian teacher in-service training program (30 credits)

- a certificate from the AgriTeach Consortium for the course: 'Teaching Agricultural Informatics in Agricultural Vocational Training'.

At the end of the course, participants evaluated the pilot training based on an online questionnaire.  This evaluation included:

- To what extent was the information learned during the training novel and useful for you?
    - Extremely novel and useful - 48%
    - Very useful - 38%
- What was the quality of the training materials provided?
    - Very good - 71%
    - Good - 26%
- To what extent did the course support your professional development?
    - Extremely supportive - 49%
    - Very supportive - 33%
- How did you rate the course overall?
    - Very good - 56%
    - Good - 41 %

The closing event of the pilot training, including the certificate award ceremony, took place on June 13, 2019 in Makó, attended by most of the successfully completing vocational school teachers and by the partners of the Agriteach 4.0 project.

The scale of the pilot training, coupled with the very high percentage of completing teachers, was deemed to be a very successful and beneficial experience for the partnership.

The training materials created in the project are openly available at this Moodle site – readily accessible after a minimal registration process:

http://moodle.agriteach.hu/