ICT in Agriculture

Information and communication technologies play an important role in agriculture. From helping with day-to-day work and administration to advanced techniques of precision agriculture which help reduce costs and increase productivity.

Course Introduction

The rapid evolution of technology has unquestionably led to advances that have significantly changed many practices in our lives today. The changes introduced by the 20th century technology to everyday life are irreversible with their transformations in communication, education, business life, work, the purchase of goods, entertainment, data storage and of course, in agriculture.

The rapidly changing economic and social environment requires a correspondingly constant adaptation from the actors of the economy. This includes vocational education that prepares many of the workforce for the changing labour market.

For this very reason vocational education has been pushed into the limelight in European countries over the past few years, and a reformation and transformation of the development of vocational education is subsequently in progress.

Changes in education are slower and schools can only respond to the needs in smaller steps.

However, it is very important to start modern educational methods, to take advantage of the opportunities offered by technology in education and, last but not least, to update the content of vocational training materials.

The story with education in agriculture is the same. There is a great need for specialists who are: skilled in IT and agricultural production; able to design applications and operate them; able to educate users and provide counselling.

The situation of VET schools as providers of that education is made more difficult by the fact that many of these tools are expensive, and without tools it is difficult to solve the practical training problems facing students.

The project Agriteach 4.0 is going to help you with it. In Module 1 of the curriculum, a number of active learning support methods, ICT tools are presented, introduces Open Educational Resources and free online learning repositories. Module 2 provides up-to-date knowledge of the current European agricultural strategies and initiatives, and the module 3 introduces the basic concepts, tools and machines of Agriculture 4.0.

WHAT IS PRECISION AGRICULTURE EXACTLY?

Precision agriculture is the concept of modern agriculture management using digital technologies for monitoring and optimizing production processes in agriculture.

The term precision agriculture covers many different areas and various technologies that can be utilized to optimize costs and productivity of agricultural production.

Precision agriculture uses satellite navigation and navigation positioning systems, as well as a number of other technologies. These include: automatic steering control, prescribed trajectories, automatic vehicle rotation, precision sowing, targeted use of fertilizers, data analysis obtained from remote sensing, utilization of UAVs to create map databases etc.

Modules

Within the framework of the project Agriteach 4.0, three modules have been developed, by the partnership, which are available in the form of e-learning.

- M1 Reinventing agricultural education
- M2 European Strategies and initiatives of e-Agriculture
- M3 Digital systems within Agriculture 4.0

After the completion of the curriculum, pilot trainings will be conducted in Hungary and Macedonia, in order to test the course among vocational teachers.

Courses were made in the Moodle framework available in three languages, available here: http://moodle.agriteach.hu/

Module 1

Information and Communication Technology (ICT) and World Wide Web (www) in particular, have played a significant role in the transforming traditional teaching methods into successful innovative pedagogical strategies.

This module encourages teaching approaches that foster lifelong learning skills, promote intellectual curiosity and develop competencies in agriculture technologies. The module aims to demonstrate how to establish an ICT – enabled creative and innovative teaching/ learning environment in 21st century classrooms, and to help the teachers turn traditional teaching methods into a learner-centered, participative teaching experience.

.This module was developed by ITS Hungarian partner.

Module 2

The goal of the second module is to inform teachers about the importance of a strategic approach to the development of e-agriculture, and to detail the main steps and components of the process, including standards and formats.

The participants/ vocational teachers understood how different policies work at the EU level, particularly those related to ICT, for innovation, agriculture, and rural development will be familiarized with usage of particular e-government services and specific ICT applications and tools related to national implementations of the Common Agriculture Policy and AKIS.

By the end of the course the participants/ vocational teachers recognized why a strategy is needed, how to develop one, and what it can achieve.

The module was developed by GAK Hungary partner.

Module 3

The aim of the third module is to encourage a teaching approach, which fosters lifelong learning skills, promotes intellectual curiosity, and provides developing competencies in innovative agriculture technologies.

After finishing the course, the participants, advisors, vocational teachers understood and learned significantly about the technology used in digital farming, how ICTs improve the overall agricultural production and analyze and compare different approaches in agriculture using IoT technologies.

The material of this module provides an insight of the different data generated through multiply sources, how to interpret that data and use it in the decision-making processes.

In the content of this module, the participants/ the vocational teachers got a bigger understanding of the potential benefits and limitations of yield maps, trends, methods and practices of different applicative solutions in Agriculture 4.0.

This module will serve as a good research base and a learning guide for the new technologies, practices and uses in digital farming in the future.

This module was developed by the collaborations of all partners.

Aim of the project

Guide agricultural VET teachers in the renewing of their teaching methods by providing them a freely available online course "Teachers for Farming 4.0" based on a networked learning pedagogical model.

The project will integrate the networked learning methodology of a successful Leonardo project Tenegen with the pedagogical innovations of learner-centred methods such as the Creative Classroom (CC) and the Flipped Classroom (FC) model.

The learning environment and teaching model applied by this project is aligned with the pedagogical innovations of the ET 2020 framework, focusing for the development of 21st century skills, creativity, and the digital entrepreneurship of students.

Objectives

- A focused needs-analysis, and comparative study to identify the training needs by involving VET teachers and representatives of the beneficiaries - the agricultural companies.
- Developing a standard competency framework for agricultural workers and agricultural ICT practitioners aligned with EU standards such as the EQF and the e-Competence Framework.
- Curriculum Design based on the CAPDM methodology.
- Developing learning content for THREE MODULES:
    M1 Reinventing agricultural education
    M2 European Strategies and initiatives of e-Agriculture
    M3 Digital systems within Agriculture 4.0
- Development of an online collaboration platform and the implementation of the components for "Teachers for Farming 4.0"
- Piloting the "Teacher for Farming 4.0" course (HU, MK).
- Refining the syllabus and the course components according to feedback from the participants.
- Planning for valorization and sustainability.

Project basics

TARGET GROUP
Agricultural VET teachers

BENEFICIARIES
Students, farmers, advisors

PARTICIPATING COUNTRIES
Hungary, Macedonia, Czech Republic, United Kingdom

TARGET COUNTRIES
Hungary, Macedonia

PROJECT START DATE
01-09-2017

PROJECT DURATION
24 months

COORDINATOR ORGANIZATION
Galamb József Agricultural Secondary School Hungary

Teachers for Farming 4.o online course

Contact us

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- iTStudy Hungary Kft – HU
- Fondacija Agro Centar za Edukacija - MK
- AG Futura Technologies - MK
- GAK Education, Research and Innovation Centre – HU
- CAPDM Limited – UK
- Wirelessinfo - CZ

Connecting VET Teachers to Agriculture 4.0