

Multidisciplinary, Project-based Digital Learning Content for VET



Labour Market-Oriented Projects for Students

Artificial intelligence, automation, digitalization and new technologies bring with them new challenges that limit the relevance of previous education and training. Effectiveness of education depends on how relevant it is to the needs of the labour market.

Introduction

VETProfit project aims to narrow the skill gaps between VET and the labour market and prepare teachers for 21st century education through the joint development of VET learning materials involving teachers, students and businesses.

The objective of this phase of the project is to develop real-life project tasks for VET students in a multidisciplinary approach. By involving companies and planning upskilling micro-courses for students to provide missing knowledge, skills and competences, students will be able to solve the project tasks.

Collaboration of VET and companies

Collaboration between VET schools and companies is increasingly perceived as a means of promoting innovation. Educational institutions therefore were encouraged to build partnerships and define multidisciplinary projects based on real-world problems with the contribution of companies.

To achieve these, 3 multiplier events were held; one in Germany and two in Hungary, organized by DRDC (Discovery Non-profit Ltd.) and MAKESZISZ (Association of Hungarian Horticultural Vocational Training Institutions). The invited guests were representatives of companies, vocational schools and other partner institutions involved in the VETPROFIT project from the fields of IT, horticulture and agriculture. The purpose of these events was to further specify the needs of the labour market and the short and long-term goals in the respective sector.

According to this, they were asked to formulate project ideas with which the students can develop their skills in these

areas. To achieve this goal, VET schools built contact and started collaborating with companies operating in the relevant industrial field.

Having the project ideas defined by the partner schools, ITStudy organized a successful multiplier event in Hungary in October to present them to the public together with the results of the blended course for VET teachers.



Figure 1. Aspects for participants to define project ideas

Student projects

From all the ideas collected during the consultations with the companies, 9 real project tasks were defined, 5 projects from Hungary, 2 projects from Italy and 2 projects from Germany. All of these projects come from the fields of agriculture, horticulture, IT or both and they are useful for both students and companies looking for innovation.

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Project tasks defined in Hungary

- **Meteorological data influence on plant growth**
Planning the management and care of crops based on data from two different meteorological systems.
- **Drone technology in precision agriculture**
Collecting and analyzing soil and geospatial data for precision application planning.
- **Complete cultivation technology of a model plant**
Workflow planning and learning professional skills through the entire cultivation technology of two model plants.
- **Food processing – development of a software aiding wine cooling**
An application of Python programming language. Development of an application for temperature control of fermentation tanks in grape and wine processing departments using available temperature data.
- **Development of a software for recording pesticide treatments**
A web application with login interface (HTML), authorization management, stores data using Python and returns the previously recorded plant protection treatments.

Project tasks defined in Germany

- **Autonomous Hoeing Robots**
Installing a GPS-controlled hoeing robot that automatically hacks within a certain field.
- **Autonomous pest control by drone**
Programming and operating a drone to monitor a field to spread beneficial insects.

Project tasks defined in Italy

- **Design of a reporting methodology for integrated energy upgrading projects**
Developing a design and reporting methodology for integrated energy modernization projects.
- **Management Software for Companies**
Promote real-world software development skills, especially front-end software for data visualization, in a data-driven and data-centric context.

Implementation of the projects

The soft skills of vocational students can only be developed through active learning. To be successful in their future profession, they need to experience working in teams, working on a real task, being part of a project team. Therefore, after the project tasks were defined, project groups are to be formed (students, teachers, company representatives) and project plans drawn up.

Each project is planned for a maximum of one semester, partly integrated into regular lessons, practical units, partly online and outside of regular school lessons.

A standard template was used to develop the responsive project plans to ensure that they can be reused and implemented by other VET teachers after the pilot projects.

In order to support the students in successfully completing the project tasks, micro-courses will be planned and carried out in which the methods learned and digital learning contents created in the teachers' training course are used. Students will participate in their respective mini-course and start working on the assigned project task in groups in parallel (PR5). Their performance and the presentation of the results will be assessed by the company that set the task, as well as by teachers and other participants.



Project basics

Title: Multidisciplinary, Project-based Digital Learning Content for VET

Acronym: VETPROFIT

Project ID: 2021-1-HU01-KA220-VET-000025350

Partner countries: Germany, Italy, Hungary

Coordinator: iTStudy Hungary Ltd.

Duration: 01 November 2021 – 31 October 2024.

Target groups:

VET- schools' leadership

VET teachers/trainers

Companies (Agriculture and IT sectors)

Beneficiaries:

VET students

Employers

Aim of the project

The aim of the project is to reflect the needs of the labour market in vocational education and training, to prepare teachers to work with companies to develop project tasks for students and future employees to solve real problems proposed by them.

Objectives

- *review the curriculum, learning materials and teaching methods used in the initial training of IT and Agricultural sectors in the partner countries;*
- *train VET teachers of these sectors about the project method, related digital tools, innovative assessment practices and digital content creation;*
- *assign real-life project tasks for VET students, in close collaboration of teachers and labor market representatives;*
- *create a repository of project-based, re-usable, high-quality, motivating digital learning contents with an interdisciplinary approach;*
- *prepare students for successful project implementation by designing and delivering mini-courses for them;*
- *create a model to be published as a guide for teachers of other VET institutes.*

Partners

iTStudy Hungary IT Education and Research Centre. Hungary

DEULA - Nienburg GmbH, Germany

Fondazione ITS – JobsAcademy, Italy

Association of Hungarian Horticultural Vocational Training Institutions, Hungary

Premontre Vocational High School, Technical School and College, Hungary

Discovery Center Nonprofit Ltd., Hungary

