ThisIsEngineering/Pexels

Digitalization in TVET

4.0

Bachelor Industry 4.0

Submitted by Campus des Métiers, France

BILT Innovation and Learning Practice

Bachelor Industry 4.0 is a training course that responds to European challenges in the field of mastering digital skills and tools. With a special focus on collaborative work, the course has been created in close collaboration with professional sector organizations, public stakeholders and TVET providers, and is implemented as a full qualification in initial TVET or modular programme in continuing TVET.

- Start date: 09/2019
  End date: 07/2022

- Type of implementing insitution:
  Governmental Organization or affiliated

- Target groups:
  TVET students, job seekers, employees in continuing education and training, adults changing careers or returning to the labour market

Education
2030

Description of activities

The Bachelor Industry 4.0 is a modular training programme for TVET, orientated around "the life cycle" of the digital model, its link with reality and the continuity of digital data. Its aim is to foster collaborative work and develop digital skills among TVET students which are expected by the business and industrial sector:

- To master the management of the digital model including structuring and configuration, as well as the inter-operability at the heart of the information system in order to support design processes.

- To master a global approach in the development process of a product.

- To deduct the basic elements of virtual reality from engineering data, in order to model a virtual reality environment.

- To specify and follow a deployment of a virtual/augmented reality environment appropriate to those involved in its usage.

- To put in place geometrical modelling according to the different situations of design and usage.

- To master additive technology, including materials and processes.

These required skills are the result of a survey that was sent to 200 French regional industrial firms in 2015, with around seven themes dealing with the industries of the future – more precisely, the positioning of firm recruitment levels and training needs.

In addition to a training programme, a plan was implemented for teachers to instruct them on how to use new technical equipment such as workstations, metallic 3D printers, collaborative platforms, and digitalization tools.

Added value

What current challenges does your initiative address?

This programme addresses the need to increase competencies in the following areas:

- Mastering digital models relating to products, and digital tools used in designing digital simulations, enhanced reality and/or virtual reality.

- Group work including how to work on a project, using document management software such as 3D collaborative platform experience, and its tools, such as Solution Sharing/Immersion. Additionally, this includes distance and group management methods for organizing complex projects.

- A wide knowledge of prototyping processes.

- Enhancing public training offers, accessible to all learners.

Why is this initiative a success?

This initiative is underway, with the first output being the creation of a modular TVET training programme featuring collaboration between a secondary school, an engineering school, and industry partners. This new training product has acquired unanimous support from stakeholders. Long-term, the aim is to achieve the recognition of this training programme as a bachelor's degree at the partnering engineering school.

What is the added value of this example?

This is a successful example of collaboration between the public and private sector to understand and address local training and qualification needs. Contributing stakeholders include state (public) education, an engineering school, professional sector associations, and professional further training organisations.

Impact on curricula

What implications does this example have for current or future curricula?

The Campus is legitimized by the collective commitment of all stakeholders involved, which allows to develop a rapid and targeted response to the needs of 'tomorrow's skills' through frequent and constructive dialogue between TVET stakeholders. Such dialogue allows rapid development of industry-needed programmes.

How does this example impact TVET systems?

The expected impacts are essentially regional, with successful training methods being applied at the national level.

How does this example respond to industry and social demands?

Participants acquire skills, which correspond to business and industry demands, and so have a higher chance of being employed. Businesses have access to a pool of learners and then qualified technicians in digital engineering, who are 'immediately employable' and require minimal or no training to enter the workforce in a needed sector.

Transferability

Which components of this practice may have practical value to other UNEVOC Centres/TVET institutions?

The entire Bachelor Industry 4.0/Numerical Engineering programme is transferable to training organizations in other countries. As this includes international collaboration, that element may be of interest, as the training programme would create links between training organizations from different countries.

What challenges do you see if transferred to another context?

Participants must have the same access to technology and learning tools as used in industry. This requires investment as well as sufficient human capital, and then strong stakeholder engagement methodologies to ensure wide participation from training providers, industry, and the private sector. The programme can be transferred with little adaptation as it is sector specific, but translation will be one item for consideration.

- Contact person:
  Ms Héloïse Leloup, Campus des Métiers et des Qualifications Industrie du Futur Sud
  heloise.leloup@campus-industriefutur-sud.com

- For more information about this practice:
  www.campus-industriefutur-sud.com

  YouTube channel of the Campus:
  www.youtube.com/channel/
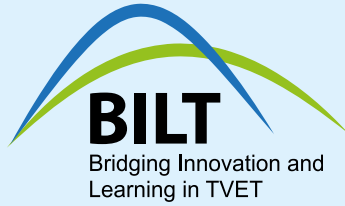 UCvpVUTM0QXfAXZA95rh15HQ

- Implementation partners:
  www.campus-industriefutur-sud.com/metiers-et-formations/plateaux-techniques-et-formations-innovantes/

New Qualifications and Competencies in TVET

Digitalization and TVET

4.0

Greening TVET

Entrepreneurship in TVET

Migration and TVET

BILT
Bridging Innovation and
Learning in TVET

The Bridging Innovation and Learning in TVET (BILT) project provides TVET stakeholders with a platform for exchange and supports them to address current challenges in TVET systems, which arise due to technological, social, environmental, and workplace changes.

Within BILT, the overarching thematic area is New Qualifications and Competencies in TVET, which is supported by four work streams:

- Digitalization and TVET,

- Greening TVET,

- Entrepreneurship in TVET, and

- Migration and TVET.

Through regular knowledge exchange, thematic project activities, and expert working groups, BILT offers opportunities for collaboration between UNEVOC Centres and TVET stakeholders in Europe, and a platform for bridging of innovation and learning between European UNEVOC Centers and TVET stakeholders in the Asia-Pacific and Africa regions.

The results of ongoing activities are accessible on BILT's web page and will be disseminated during a BILT Learning Forum.

The BILT project is carried out in collaboration with UNEVOC Network members, coordinated by UNESCO-UNEVOC with support of the German Federal Institute for Vocational Education and Training (BIBB), and sponsored by the German Federal Ministry of Education and Research (BMBF).

For more information, please visit www.unevoc.unesco.org/bilt
or contact us at unevoc.bilt@unesco.org