

# Innovative Teaching and Learning for Industrial Changes due to Industry 4.0

## Course 2: Innovative Teaching and Learning in TVET Centres due to Industry 4.0

### TOPICAL AREA: TVET and Digitalization

This module will introduce the changes going on based on lean production and will create a deeper understanding of the impact on skilled work, thus creating awareness of the workforce required for industry 4.0. It will also introduce the use of different data, the different safety systems and the use of IT safety systems to make work safer. Modern teaching approaches will be used.

- **Content, elements, format and duration can be customized to the respective needs**

#### LEARNING OUTCOMES

On completion of the training, participants

- explain the terms digitalization, industry 4., etc.
- analyse and interpret the paradigm change going on in industry because of industry 4.0
- are able to describe and explain the new level of technical and software based communication – based on different data formats – between the cyber physical systems and the internet or internet of things
- have the capability to use IT instruments in the work with automated systems, etc.
- are able to use, understand and work with the different types of data formats and data safety systems

#### CONTENTS

- Terms, introduction to industrial change, change of work, impact new technology and knowledge,
- Wider usage of Internet in the work processes of mechatronics systems and other relevant areas, e.g. agriculture and services industry,
- Data availability of sensors, actuators and process data in production systems: production planning system (PPS), manufacturing execution system (MES), supervisory control and data acquisition (SCADA), enterprise resource planning (ERP), System Applications,
- Data handling: saving data, cloud computing, data security, data mining,
- Process management (visualization/ monitoring/ coordination/ organization),
- Development of innovative lesson plans related to industry 4.0 (e.g. work with projects)

#### FORMATS

Virtual format implemented with following methods:

- Webinar
- E-Coaching
- Individual work/ Self-Learning
- Cooperative work

#### LANGUAGE

- English
- German
- Upon request: other languages with interpreters

#### TARGET GROUPS

- TVET teachers
- TVET experts
- In-company trainers
- TVET management staff
- Decision makers from relevant ministries, authorities and institutions

from all occupational fields

#### PARTICIPATION REQUIREMENTS

- 1 year experience as a TVET teacher
- qualified in a technical field

#### DURATION

- 40 h (recommended)
- Additional 20 h preparation/follow-up

#### EQUIPMENT

- Notebook / PC
- Stable internet connection
- Integrated or external microphone
- Optional: webcam

#### CERTIFICATE

The participants will receive a certificate of participation after successful completion of the course.

#### YOUR CONTACT

##### TVET Academy

Academy for International Cooperation  
Deutsche Gesellschaft für Internationale  
Zusammenarbeit (GIZ) GmbH

E [tvvet-academy@giz.de](mailto:tvvet-academy@giz.de)

I [www.giz.de/tvet-academy](http://www.giz.de/tvet-academy)