

Provet 4.0 | Industrial Revolution

The electric and metal mechanic EU industries need qualified people with a range of skills and competencies related to **Key Enabling Technologies (KETs)** for Advanced Manufacturing to respond to demands of the new century organizations and maintain and develop levels of competitiveness.

Thus PROVET 4.0 contributes to a suitable, innovative and job-oriented vocational training responsive to the needs of this new EU industrial revolution, developing and validating an innovative **vocational training curriculum** and a **course demanded by industry** which allows qualify VET learners and workers of industry factories for the **new industrial revolution 4.0**.

Cyber-Physical Systems

General Objective

Course's objective is the introduction into Cyber Physical Systems (CPS). These are devices providing information through sensorics with computing capacity, capable of making decisions, cooperate with other devices and perform actions in physical processes.

The module is focused on

Unit1: Introduction (What CPS are and State of the Art).

Unit 2: Definitions of elements used on CPS creation.

Unit 3: Materials used on CPS and software tools.

Unit 4: Current and potential applications (Pros and cons of the CPS usage).

Augmented Reality

General Objective

This course aims to understand the bases of operation and the scope of Augmented Reality (AR). The union of the physical environment with virtual information is and will be the way to interact in the business environment, where different working environments are susceptible to implement it, such as maintenance, storage, medical diagnosis, etc.

The module is focused on

Unit 1: Introduction (Evolution of Augmented Reality and Differences with Virtual Reality)

Unit 2: AR definitions, tracking technology and display devices.

Unit 3: Vision technologies and programming tools (SDK) to implement RA services.

Unit 4: Applications of Augmented Reality in the various fields of industry.

Cloud Computing

General Objective

This module aims at exploring solutions and best practices of Cloud Computing in order to understand requirements and constraints of nowadays Cloud Computing applications and related future trends.

The module is focused on

Unit 1: Cloud Services and Functions

Unit 2: Cloud Models

Unit 3: Why Choosing Cloud Computing?

Unit 4: Cloud Nowadays

Big Data

General Objective

The module is about Big Data Fundamentals and their actual applications nowadays in order to understand when to implement related solutions, considering positive aspects, risks and future trends.

The module is focused on

Unit 1: Big Data Characteristics

Unit 2: Big Data Analytics

Unit 3: Big Data Platforms

Unit 4: Big Data Nowadays

Collaborative Robotics

General Objective

This course aims to introduce concepts of collaborative robotics and associated systems to guarantee task execution quality and human safety.

- Explain the concept of collaborative robotics.
- Explain the associated ISO standard for human safety.
- Describe the principal sensors used in collaborative robotics.

The module is focused on

Unit 1: Introduction to collaborative robotics concepts and associated ISO standard.

Unit 2: Analysis of existing collaborative robots and associated systems. How do humans work with robots ?.

Unit 3: Principal sensors used in collaborative robotics.

Unit 4: Potential applications and associated benefits.

Additive manufacturing

General Objective

This course aims to introduce the different classic additive manufacturing (AM) processes with their applications and the chain from the CAD software to the printed part.

- Describe the different classic additive manufacturing processes.
- Describe different kinds of application with their associated safety aspects
- Explain the workflow from CAD software to printed part.
- Explain the impact of additive manufacturing on part design.

The module is focused on

Unit 1: Introduction (history of additive manufacturing)

Unit 2: Definition of technology, materials and tools. Safety aspects.

Unit 3: Presentation of the workflow

Unit 4: Part design to take into account the additive manufacturing process. Illustration with potential applications.