

Curriculum

Digital Skills for Industry 4.0

PROFESIONAL PROFILE: Technician

The technicians of industrial SMEs interested in developing skills to follow up the transformation processes in their companies should know about the main concepts of 4.0 as well as familiarize with related processes and technologies.

TRAINING

LEARNIING MODULES	Asignación horaria
Introduction to Industry 4.0	8h
Industry 4.0 Technologies for Product Design & Manufacture	15h
Cloud Based Computing: Definition of Cloud Computing: Key concepts	3h
Digital Factory Tools	2h
e-Commerce	7h
Industrial Security	2h

Duration: 37 hours.

1) Introduction to Industry 4.0

DESCRIPTION:

This module introduces the history and concepts of the 4th Industrial Transformation. And it also gives an Introduction to Production Management.

Units:

Introduction to Industry 4.0

Production Management

LEARNING OUTCOMES:

-KNOWLEDGE:

Be knowledgeable of how industry has evolved from the 1st to the 4th Industrial Revolution.

Be knowledgeable in Production, project Management Techniques, skills and steps in Management methodologies.

-SKILLS:

Be able to recognise the most significant advancements of each era and how they affected each subsequent revolution, understand the latest reforms of Industry 4.0 and how they can be integrated in the Industry.
Be able to recognise the basic concepts of Production Management.

-RESPONSABILITIES & AUTONOMY:

Have a working knowledge of the most important technological advancements brought about by the 4th Industrial Revolution and know how to integrate them in their sector without supervision and guidance.

Identify the necessary competences of Production Management, Steps to Production Management, including Management Techniques; Planning; Skills and Life Cycles.

-COMPETENCES:

Digital: Production.

Management & Personal: Communication, management teamwork, problem solving and organizational competences.

2) Industry 4.0 Technologies for Product Design & Manufacture

DESCRIPTION:

This module provides information about different CAD softwares used in the industry and in education.

It is also aimed to offer learners an overview about of Reverse Engineering & 3D scanning technology

And it provides information of the different types of CNC machines, and how these can be utilised to produce components.

Units:

CAD

RE & 3D Printing

CNC

LEARNING OUTCOMES:

-KNOWLEDGE:

Be knowledgeable of the use of the CAD technologies and their application fields.

Be knowledgeable of the use of Reverse Engineering, 3D Scanning Technology, 3D Scanners and different 3D Scanning Application.

Be knowledgeable of the workflows from design to manufacture.

-SKILLS:

Be able to recognize different application fields and the utility of CAD.

Be able to do simple designs

Know about reverse engineering and why to use 3D scanning technology. And also know where and when to use 3D scanning.

Be able to differentiate between the different types of CNC technologies.

And outline how CNC technologies are used within Industry 4.0 applications.

-RESPONSABILITIES & AUTONOMY:

Recognize the importance of CAD in industry 4.0, its versatility and speed at the time of making designs of certain complexity.

Recognise the need of using Reverse Engineering and 3D scanning Technology in their company, should they need it.

Discern between diverse types of CNC, know how to use them and know about common CNC applications within Industry 4.0.

-COMPETENCES:

Digital: Digital Models, automation, Big Data, cloud, production and software.

3) Cloud Based Computing: Key concepts

DESCRIPTION:

This module gives an introduction to the traditional deployment model, server virtualization, history of cloud computing and definition of cloud computing.

LEARNING OUTCOMES:

-KNOWLEDGE:

Be knowledgeable of the key concepts about cloud computing.

-SKILLS:

Be aware of the fundamentals of cloud computing and related definitions.

-RESPONSABILITIES & AUTONOMY:

Identify cloud computing services and differences between cloud computing and other solutions.

-COMPETENCES:

Digital: Digital Models, IoT, Big Data, cloud, production, software and security.

Management & Personal: Communication, teamwork and organizational competences.

4) Digital Factory Tools

DESCRIPTION:

This module is a review of the different tools that make up the digital factory throughout the factory life cycle.

LEARNING OUTCOMES:

-KNOWLEDGE:

Be knowledgeable of the different digital factory tools available on the market.

-SKILLS:

Be capable of listing a number of digital factory tools and how these are related to the different phases of the factory life cycle.

-RESPONSABILITIES & AUTONOMY:

Argue the need for an integrated data model/digital twin which unifies the different digital factory tools.

-COMPETENCES:

Digital: Digital Models, Big Data, cloud.

Management & Personal: Communication and management competences.

5) e-Commerce

DESCRIPTION:

This module provides essential knowledge about e-commerce. It provides the keys around the management of an online store, digital marketing, purchase processes or customer service. In addition, it provides tools to address industrial strategies of e-commerce and digital marketing.

And it introduces different e-commerce solutions available on the market.

Units:

Introduction to e-commerce

E-commerce solutions for SMEs

LEARNING OUTCOMES:

-KNOWLEDGE:

Be familiar with the tools for creating and managing an online store.

Understand the keys of ecommerce and digital marketing. And acquire the basic knowledge to implement strategies of e-businesses.

Identify e-commerce needs and functions

-SKILLS:

Demonstrate capacity to identify e-commerce processes. Apply e-commerce strategies inside the company and carry out and supervise e-commerce developments.

Be familiar with market solutions. And introduce most suitable solutions for SMEs.

-RESPONSABILITIES & AUTONOMY:

Design e-commerce strategies and projects and identify company requirements and challenges of implementation.

Discuss the process of e-commerce implementation.

-COMPETENCES:

Digital: Digital Models and software.

6) Industrial Security

DESCRIPTION:

Provides an introduction to the concepts of industrial networking and security

LEARNING OUTCOMES:

-KNOWLEDGE:

Understand the basics of cybersecurity. Be knowledgeable of how security issues affect the Digital Factory. Be knowledgeable of the different type of network setups and their implementation. And understand the different ways in which cybersecurity can be implemented within the digital enterprise.

-SKILLS:

Be able to list a number of cybersecurity risks, and be able to define the concept of security zones within a digital enterprise.

-RESPONSABILITIES & AUTONOMY:

Can argue that 100% cybersecurity is not possible to achieve and a system will always be vulnerable to cyber-attacks.

Understanding what precautions and approaches may be employed to minimize the risk to an industrial control system.

-COMPETENCES:

Digital: Digital Models, IoT, automation, cloud and security.

Management & Personal: Organizational competences.