

O2-R1: CURRICULUM RESTART
Training Toolbox: Digital Skills for Industry 4.0



Co-funded by the
Erasmus+ Programme
of the European Union

Module No.	Knowledge Area / Module Title	Module Description	Learning Outcomes			Hours	PROFILES			Digital Skills								Management & Personal Skills						
			Knowledge	Skills	Responsibility and Autonomy		Managers	Technician	Mid-Management	Digital Models	IoT	Automation	Big Data	Cloud	Production	Software	Security	Comms	Mgt	Team work	Prob Solv	Risk Mgt	Multi-Disc	Organizat
1	Introduction to Industry 4.0																							
1.1	Introduction to Industry 4.0	This module will introduce the history and concepts of the 4th Industrial Transformation	Be knowledgeable of how industry has evolved from the 1st to the 4th Industrial Revolution	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	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	6	X	X	X										X					X
1.2	Production Management	This module gives an introduction to Production Management	Be knowledgeable in Production - Project Management Techniques, skills and steps in Management methodologies	This Unit will explain the Principles of Production Management, Planning and Control. On completion you will recognise the basic concepts of Production Management.	Participants will be able to identify the necessary competences of Production Management, Steps to Production Management, including Management Techniques; Planning; Skills and Life Cycles.	2		X							X			X	X	X	X			X
2	Industry 4.0 Technologies for Product Design & Manufacture																							
2.1	CAD	This module provides information about different CAD softwares used in the industry and in education.	Be knowledgeable of the use of the CAD technologies and their application fields	After receiving this module, students will be able to recognize different applications fields and the utility of CAD. In the same way, they will be able to do simple reviews	Students will be able to recognize the importance of CAD in industry 4.0, its versatility and speed at the time of making designs of certain complexity	4		X		X			X		X	X		X						
2.2	RE & 3D Printing	This module is aimed to offer learners an overview about of Reverse Engineering & 3D scanning technology	Be knowledgeable of the use: Reverse Engineering 3D Scanning Technology 3D Scanners and Different Type 3D Scanning Application	After receiving this form, participants will have acquired the following skills: - Participants will learn what is reverse engineering and why use 3d scanning technology. They will also learn where and when to use 3D scanning.	The most important thing which the participants will gain after complete this course, will be to recognise the need of using Reverse Engineering and 3d scanning Technology in their company should they need it.	8		X		X		X	X	X	X	X								
2.3	CNC	This module will provide information of the different types of CNC machines, and how these can be utilised to produce components	Be knowledgeable of the workflows from design to manufacture	- Understand the differences between the different types of CNC technologies - Capable to outline how CNC technologies are used within Industry 4.0 applications.	Participants will be capable of understanding the difference between different types of CNC, how it is utilised and some common CNC applications within Industry 4.0.	3		X	X	X		X		X	X	X								
3	Cloud Based Computing																							
3.1	Definition of Cloud Computing: key concepts	This module gives an introduction to the traditional deployment model, server virtualization, history of cloud computing and definition of cloud computing	Be knowledgeable of the key concepts about cloud computing	After receiving this form, participants will have acquired the following skills: - awareness of the fundamentals of cloud computing and related definitions	The participants will be able to identify cloud computing services, and differences between cloud computing and other solutions	3	X	X	X	X	X		X	X	X	X	X	X		X				X
3.2	Cloud Models	This module provides information relating to cloud computing features, deployment models, service models	Can describe the different cloud models	After receiving this form, participants will have acquired the following skills: - be aware of the most important cloud computing modules and services and their features.	The participant will be able to choose which cloud solutions are more suitable for his/her needs	3	X		X	X	X	X		X	X	X	X	X	X	X				
3.3	Advantages of cloud computing for SMEs	This module presents some advantages and disadvantages related to the use of cloud computing for SMEs	Be knowledgeable of the advantages of the use of cloud computing for SMEs	After receiving this form, participants will have acquired the following skills: - Participants will learn pros & cons of cloud based services, and examples from real cases	The participant will be able to choose when cloud based solutions are more suitable for his/her needs from real cases	2	X		X	X				X	X	X		X		X				X
4	Digital Factory																							
4.1	Digital Factory Tools	A review of the different tools that make up the digital factory throughout the factory life cycle	Be knowledgeable of the different digital factory tools available on the market	- Capable of listing a number of digital factory tools and how these are related to the different phases of the factory life cycle	Be able to argue the need for an integrated data model/digital twin which unifies the different digital factory tools	2	X	X	X	X			X	X				X	X					
4.2	Implementing the Smart Factory	Provides information relating to the possible implementation means of a smart factory	Understand the importance of the smart factory and how this can combine with other elements of a digital enterprise	- Capable of identifying different elements within a digital enterprise - Capable of distinguishing between an Industry 4.0 and traditional enterprise set up	Be able to discuss the difference between a traditional and digital enterprise and how a transformation process may be undertaken to transform the business	2	X		X	X								X	X					
5	eCommerce																							
5.1	Introduction to e-commerce	This module provides essential knowledge about e-commerce. It allows to know 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.	- Be familiar with the tools for creating and managing an online store. - Understand the keys of e-commerce and digital marketing. - Acquire the basic knowledge to implement strategies of e-businesses.	- Demonstrate capacity to identify e-commerce processes. - Apply e-commerce strategies inside the company - Carry out and supervise e-commerce developments	Be responsible for design e-commerce strategies and projects Be responsible for identify company requirements and challenges of implementation	5	X	X	X	X	X	X		X		X		X	X					X
5.2	E-commerce solutions for SMEs	This module introduces the reader to the different e-commerce solutions available on the market.	Identify e-commerce needs and functions	- Be familiar with market solutions - Introduce most suitable solutions for SMEs	Be able to discuss the process of e-commerce implementation	2		X		X						X								
6	eLeadership																							
6	eLeadership	The e-leadership acquires a key importance in the processes of transformation towards the industry 4.0 and incorporation of the new digital technologies. The digital environments require new tools for the successful management of businesses and their innovation. This section will focus on e-leadership skills and competences.	Be knowledgeable of leader characteristics and functions in 4.0 environments - Understand how to develop e-leadership models	Be able to recognize main transformation processes affecting leadership and new organization models	Be responsible for creating internal conditions for collaborative environments - Recognize skills and competences to lead 4.0 organizations	3	X		X									X	X	X	X	X	X	X
7	Big Data																							
7	Big Data	Big Data is one of the main drivers for the advance and development of industry 4.0 technologies. Thus, it is important to showcase the advantage Big Data gives to companies which are eager to get onboard Industry 4.0. This module is meant to provide an introduction to Big Data and some technologies related to it. In addition, it will help the participant out in discovering what Big Data really is, how does it work and how it can benefit a business.	This module will give knowledge to its participants related to: - Basics of Big Data - Advantages and challenges presented by Big Data - Processes related to Big Data management - What are the basic steps when developing a Big Data Strategy - What to look for in a Big Data Solution - What to expect from Big Data in the future strategy	After receiving this module, the participants will have gained the following skills: - The participants will learn how to draft a basic big data strategy - Make a more informed decision regarding what Big Data solution is better suitable for their company	The most important thing which the participants will gain after complete this course, will be to recognise the need of using Big Data in their company should they need it.	8	X		X	X		X	X		X			X	X	X	X	X		
8	Industrial Security																							
8	Industrial Security	Provides an introduction to the concepts of industrial networking and security	- 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 they can be implemented - Understand the different ways in which cybersecurity can be implemented within the digital enterprise	After receiving this module, the participants will have gained the following skills: - Capable of listing a number of cybersecurity risks - Capable of defining the concept of security zones within a digital enterprise	Can argue that 100% Cybersecurity is not possible to achieve and a system will always be vulnerable to cyber attacks. Capable of understanding what precautions and approaches may be employed to minimise the risk to and industrial control system.	2	X	X	X	X	X			X		X								X