

Unit	Working with HMI screens		
Prerequisites:	<ul style="list-style-type: none"> - Basic pneumatic systems - Basic knowledge of electricity - Basic knowledge about most common sensors (magnetic, optical, inductive, capacitive, mechanical, colour,) - Basic knowledge about sequential PLC-programming with LAD and FBD 		
Work tasks:	<ul style="list-style-type: none"> - Making a hardware and software connection between the PLC and HMI screen - Prepare a input by using a touch HMI screen and visualize a output on the HMI screen - Choosing a proper way for presenting the input and output signals on the screen. - Choosing how to make a presentation off the machine on the HMI screen. - Programming and commissioning of a production module to work properly in cooperation with a HMI screen. - Make a simple data acquisition of the machine and this data visible on the HMI screen. - Fault finding on modules in order to identify/replace broken components wrong <i>program rules</i>. - Applying during all tasks general safety rules - Write a FAT report according to your own opinion how to test the task. - Use FAT for testing the tasks and give the final approval that it is working correct. 		
Learning Outcomes:	<i>Knowledge</i>	<i>Skills</i>	<i>Competence</i>
	<ul style="list-style-type: none"> - He/she knows the basic connecting methods of the HMI screen with a PLC. - He/she knows the electro technical symbols for the most common sensors in a drawing. 	<ul style="list-style-type: none"> - He/she is able to make a connection between a HMI screen and a PLC. - He/she is able to assemble and adjust sensors to work properly. 	<ul style="list-style-type: none"> - He/she is able to make a demonstration with a HMI screen where it's used as input and output.
	<ul style="list-style-type: none"> - He/she is knows the different ways of visualises the working of a machine on a HMI screen. 	<ul style="list-style-type: none"> - He/she is able make a visualisation off a working machine. 	<ul style="list-style-type: none"> - He/she uses the right strategy to inform the operator how the machine works by using a HMI.
	<ul style="list-style-type: none"> - He/she knows the difference between databases and fault acquisition. 	<ul style="list-style-type: none"> - He/she is able to show a fault that occurs in the machine on the HMI screen by text message 	<ul style="list-style-type: none"> - He/she is able to make a database that visualises the occurring fault also in rang of importance.
	<ul style="list-style-type: none"> - He/she knows the principle rules of at least 2 fault finding methods. 	<ul style="list-style-type: none"> - He/she can use 1 of the mast important ways of fault finding. 	<ul style="list-style-type: none"> - He/she can make a choice for the fault finding method and can explain the reason.
<ul style="list-style-type: none"> - He/she knows the principle of testing methods 	<ul style="list-style-type: none"> - He/she is able to create a test procedure for a task/machine 	<ul style="list-style-type: none"> - He/she is able to test the machine/task and describing the state of the machine, and also give a solution for the omission that came out of the test. 	



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	- He/she knows how to describe the general safety rules.	- He/she is able to work in proper conditions, trying to avoid any kind of risk.	- He/she is responsible for applying general and specific branch related safety rules and procedures in his/her work.
Reference to national qualification:	The Netherlands: Technicus engineering (NQF 4) Sweden: El och Energiprogrammet inriktning Automation (SeQF 4) Finland: Grundexamen inom el- och automationsteknik Level 4 (NQF 4) Spain: Técnico Superior en Mecatrónica Industrial Level 5 (NQF 5) Turkey: Endüstriyel Otomasyon Teknolojileri Alanı, Mekatronik dalı (NQF 4)		
Reference to EQF:	(Level 4 - The unit is too small to refer to an EQF level. Because it refers to an NQF this is an indirect reference to the EQF to which the regarding NQF belongs)		
ECVET point:	N/A		
Assessment:	Theoretical test and assessment assignment to evaluate both skills and competences in relation to the learning outcomes described above. For specific information about the assessment – please refer to the Assessment matrix		

