

Working in Industrial Automation

Unit	INDUSTRIAL ROBOTIC SYSTEMS		
Prerequisites:	<ul style="list-style-type: none"> - Basic pneumatic systems - Basic knowledge of electricity - Basic knowledge about most common sensors (optical, inductive, capacitive, mechanical) 		
Work tasks:	<ul style="list-style-type: none"> - Programming and testing robot program by using simulation program - Programming and starting of a Industrial Robot - Programming and testing robot program including robot handling and a variety of sensors - Programming and testing robot program including conveyor belt - Programming and testing robot program including CNC machine - Fault finding in a PLC-controlled production line including industrial robot and a variety of sensors and actuators. 		
Learning Outcomes:	<i>Knowledge</i>	<i>Skills</i>	<i>Competence</i>
	<ul style="list-style-type: none"> - He/she knows general structure of Robotics Simulation Program - He/she knows how to explain programming commands. 	<ul style="list-style-type: none"> - He/she is able to write program by using Robotics Simulation software. - He/she is able to simulate his/her program at computer 	<ul style="list-style-type: none"> - He/she is responsible for writing structured and correct program of industrial robots.
	<ul style="list-style-type: none"> - He/she knows the parts of industrial robot industrial Robot. - He/she knows the preparation steps to start industrial robot. - He/she knows the different manual movements of a robot - He/she can describe the main characteristics of a robot. 	<ul style="list-style-type: none"> - He/she is able to operate industrial robot in different moving modes. - He/she is able to download/upload programs/positions to/from a robot and make the robot do desired movements. 	<ul style="list-style-type: none"> - He/she is responsible to operate industrial robots according to safety rules.
	<ul style="list-style-type: none"> - He/she knows how to recognise if a robot is working in proper conditions 	<ul style="list-style-type: none"> - He/she is able to decide if a robot is broken or working properly. - He/she is able to use to monitor the process for fault finding. - He/she is able to check the robot parameters and program. 	<ul style="list-style-type: none"> - He/she is responsible for applying the right strategy to fix identified faults.
	<ul style="list-style-type: none"> - He/she knows movement commands to operate industrial robot for handling and assembling work pieces. 	<ul style="list-style-type: none"> - He/she is able to make handling and assembling process by using industrial robot 	<ul style="list-style-type: none"> - He/she is responsible for handling process by robot according to procedures and safety rules



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	<ul style="list-style-type: none"> - He/she knows how to create loop and decision structure of a program 		<ul style="list-style-type: none"> - He/she is responsible for writing robot program which getting inputs from sensors.
	<ul style="list-style-type: none"> - He/she knows basic principle of robots working together with conveyor belt which can be controlled with PLC. 	<ul style="list-style-type: none"> - He/she is able to use the robots inputs and outputs 	<ul style="list-style-type: none"> - He/she is responsible for controlling conveyor belt by robot according to procedures.
	<ul style="list-style-type: none"> - He/she knows basic principle of robots working together with CNC machines. 	<ul style="list-style-type: none"> - He/she is able to open/close the cover of CNC machine by programming robot. - He/she is able to mount work piece to CNC machine by using robot. 	<ul style="list-style-type: none"> - He/she is responsible for operating CNC machine and industrial robot together according to procedures and safety rules.
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		

