

Guidelines - Creating & filling in the EUROPASS Mobility

The EUROPASS Mobility is used to record the knowledge and skills acquired in another European country.

The EUROPASS Mobility is for any person moving to a European country to learn or acquire a work experience, whatever their age or level of education.

The EUROPASS Mobility is completed by the partner organisations involved in the mobility project, the first in the country of origin and the second in the host country.

The EUROPASS Mobility may be created online. However, you need to contact your National Europass Centre to obtain a password and login to the EUROPASS Mobility database. Here you can find contact information to your specific centre: [National Europass Centres](#)

A EUROPASS example can be viewed here: [EUROPASS Mobility example](#)

The following is a copy of the fields in the EUROPASS Mobility sections 4 and 5a. Follow the guidelines to create the EUROPASS the same way for all EURIAC students.

Section 4 in the EUROPASS Mobility

23. Objective of the Europass Mobility experience

- An integrated European Class in automation to support VET students in the acquisition and use of knowledge, skills and competences to facilitate personal development, employability and entry to a European labour market. //retrieved from <http://euriac.eu>

24. Initiative during which the Europass mobility experience is completed, if applicable

- European Class in Industrial Automation (EURIAC, project id: 2011-1-SE1-LEO05-08388) a transfer of innovation project within the Leonardo da Vinci, Lifelong Learning Programme

25. Qualification (certificate, diploma or degree) to which the education or training leads, if any

For Spain: Automatización y robótica industrial

For the Netherlands: Middenkader Engineering Technicus

For Finland: El- och automationsteknik

For Sweden: Specialutformat program Mekatronik

26. Community or mobility programme, if any

EUROPEAN CLASS IN INDUSTRIAL AUTOMATION (EURIAC) Mobility X

27. Duration of the Europass Mobility experience (From dd/mm/yyyy To dd/mm/yyyy)*

For mobility 1: 24 September 2012 until 5 October 2012

For mobility 2: 19 November until 30 November 2012

For mobility 3: 14 January until January 25 2013

For mobility 4: 11 March until 22 March 2013

Section 5a in the EUROPASS Mobility

29. Activities/tasks carried out*

For mobility 1 in Spain

Name of the unit of learning outcomes

30. Working with FMS (Flexible Manufacturing System) system:

- SFC (Sequence Function Control) programming with PLC
- Programming of FMS (Flexible Manufacturing System) system
- Using I/O communication between stations
- Replacing broken components (fault finding)
- Using emergency stops

For mobility 2 in the Netherlands

Name of the unit of learning outcomes

Working with motor controllers:

- Produce general scheme drawing of a production module using CAD systems
- Assembly, programming and commissioning of a production module including Ladder programming with PLC and motor drivers.
- Assembly, programming and commissioning of a production module including Sequence Ladder programming with PLC.
- Using relays and contactors controlled by PLC in order to put the Y/D motor into service.
- Applying general safety rules according to the low voltage directive
- Working with frequency controllers
- Using basic principles of measurement in a motor control circuit for fault finding

Name of the unit of learning outcomes

Working with analogue signals:

- Assembly, programming and commissioning of a production module including a (Logical) FBD-programmed PLC-system.
- Creating simple on/off regulating PLC programs
- Handling analogue signals, inputs and outputs, (0-10V or 4-20mA) in PLC programs.
- Fault finding and recalibration of transmitters
- Handling over-ranging and programming an open circuit for safety reasons

For mobility 4 in Sweden

Name of the unit of learning outcomes

Working with safety systems:

- Assembly, programming and commissioning of a production line including a ST-programmed Mitsubishi module based PLC-system.
- Assembly, programming and commissioning of a production line controlled by a PLC-system including a safety system. (Failsafe PLC, electrical and mechanical safety components.)
- Perform a risk assessment on a PLC-controlled production line.
- Fault finding in a PLC-controlled production line including a variety of sensors and actuators.

31. Job-related skills and competences acquired

(Enter the learning outcomes from the actual unit of learning outcomes and see to it that you use the correct pronoun 'he' or 'she')

Note: If a student has not achieved certain Learning Outcomes, these should be deleted from the EUROPASS.

Unit A Spain	Title of the unit: <i>Working with FMS (Flexible Manufacturing System) systems</i>
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"> - Assembly, programming and commissioning of a production module including SFC (Sequence Function Chart) programming with PLC. - Assembly, programming and commissioning of several production modules into a production line using I/O communication between modules. - Fault finding in a PLC-controlled production modules in order to replace broken components.

	<ul style="list-style-type: none"> - Using production stops in a production module programmed by SFC. - Applying general safety rules and writing a test report. 			
Learning Outcomes:	Knowledge	Skills	Competence	
	<ul style="list-style-type: none"> - He/she knows how to define the basic processes using SFC (Sequential Function Chart) methods. - He/she knows how to recognise syntax of SFC-language according to IEC 61131-3. - He/she knows how to describe how to program the production modules. 	<ul style="list-style-type: none"> - He/she is able to analyse the process that has to be controlled. - He/she is able to run through a PLC program, using a given SFC, and check if it works properly. 	<ul style="list-style-type: none"> - He/she is responsible for applying IEC 61131-3 to create a PLC-program using SFC. 	
	<ul style="list-style-type: none"> - He/she knows how to recognise electro technical symbols and knows in which norm to find them. 	<ul style="list-style-type: none"> - He/she is able to test the output condition and actuators - He/she is able to test the input condition and sensors. 	<ul style="list-style-type: none"> - He/she is responsible for the correct functioning of the installation using the module's diagrams. 	
	<ul style="list-style-type: none"> - He/she knows how to recognise if a machine is working in proper conditions. 	<ul style="list-style-type: none"> - He/she is able to decide if a component is broken or working properly. - He/she is able to use the program to monitor the process for fault finding. - He/she is able to check and measure the circuit using a wiring diagram. 	<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 how to describe the rules for writing a test report. 	<ul style="list-style-type: none"> - He/she is able to evaluate the function of the different parts of the installation. 	<ul style="list-style-type: none"> - He/she is responsible for reflecting upon his/her actions in a test report. 	
	<ul style="list-style-type: none"> - He/she knows how to describe the general safety rules. 	<ul style="list-style-type: none"> - He/she is able to point out when a machine doesn't meet with certain safety standards - He/she is able to work in proper conditions, trying to avoid any kind of risk. 	<ul style="list-style-type: none"> - He/she is responsible for applying general and specific branch related safety rules and procedures in his/her work. 	
				<ul style="list-style-type: none"> - He/she is responsible for sharing knowledge, experience and insights so that electro technical products and systems will be tested properly.
Reference to national qualification:	The Netherlands	Sweden	Finland	Spain
	Middenkader Engineering Technicus (crebo 94421)	El och Energiprogrammet, inriktning Automation Industri tekniska programmet, inriktning Drift och underhållsteknik Teknikprogrammet, inriktning	Grundexamen inom el- och automationsteknik Grundexamen inom maskin- och metallbranschen	Automatizacion y robotica Industrial Técnico Superior en Mecatrónica Industrial Técnico superior en

		Produktionsteknik		Mantenimiento de Equipo Industrial
Reference to NQF:	Level 4	N/A	N/A	5
Reference to EQF:	Level 4*	Level 4*	Level 4*	Level 5*
ECVET points	N/A**			
Assessment:	Observations			

* The unit has been identified as part of the above mentioned national vocational qualifications and has by that been referenced to the same EQF level as the qualification.

** Further experimentation of the concept of ECVET points is required at European level before utilisation in practice.

Unit B the Netherlands	Title of the unit: Working with motor controllers		
Prerequisites:	<ul style="list-style-type: none"> - Basic knowledge about most common sensors (optical, inductive, capacitive, mechanical) - Basic principle of motors and generators - Working with 400V systems - Basic knowledge of using relays and contactors - Basic knowledge of electricity 		
Work tasks:	<ul style="list-style-type: none"> - Produce general scheme drawing of a production module using CAD systems - Assembly, programming and commissioning of a production module including Ladder programming with PLC and motor drivers. - Assembly, programming and commissioning of a production module including Sequence Ladder programming with PLC. - Using relays and contactors controlled by PLC in order to put the Y/D motor into service. - Applying general safety rules according to the low voltage directive - Working with frequency controllers - Using basic principles of measurement in a motor control circuit for fault finding 		
Learning Outcomes:	<i>Knowledge</i>	<i>Skills</i>	<i>Competence</i>
	<ul style="list-style-type: none"> - He/she knows how to define the basic processes using Ladder methods. - He/she knows how to recognise syntax of Ladder-language according to IEC 61131-3. - He/she knows how to describe how to program the production modules. 	<ul style="list-style-type: none"> - He/she is able to analyse the process that has to be controlled. - He/she is able to run through a PLC program, using a given Ladder, and check if it works properly. 	<ul style="list-style-type: none"> - He/she is responsible for applying IEC 61131-3 to create a PLC-program using Ladder.
	<ul style="list-style-type: none"> - He/she knows how to define the basic components of a frequency controller. - He/she knows how to define the basic parameters and connections of the 	<ul style="list-style-type: none"> - He/she is able to connect a frequency controller to a motor. - He/she is able to connect input to start frequency controller. 	<ul style="list-style-type: none"> - He/she is responsible for applying the right combination of settings of the frequency controller with the parameters of the motors.

	motor.			<ul style="list-style-type: none"> - He/she is responsible for applying the correct wiring of Y/D motor with its contactors
	<ul style="list-style-type: none"> - He/she knows how to define the basic principles of a CAD systems. - He/she knows how to recognise electro technical symbols and knows how to use them. 	<ul style="list-style-type: none"> - He/she is able to produce a drawing using CAD. 		<ul style="list-style-type: none"> - He/she is responsible for creating a new up-to-date drawing when changes have been made.
	<ul style="list-style-type: none"> - He/she knows how to describe the general safety rules for the low voltage directive. 	<ul style="list-style-type: none"> - He/she is able to point out when a machine doesn't meet with certain safety standards - He/she is able to work in proper conditions, trying to avoid any kind of risk. 		<ul style="list-style-type: none"> - He/she is responsible for applying general and specific branch related safety rules and procedures according to low voltage directives in his/her work.
	<ul style="list-style-type: none"> - He/she knows how to explain the method of measuring the parameters of a motor controlled by a frequency controller. 	<ul style="list-style-type: none"> - He/she is able to measure the current voltage and power of a motor controlled by a frequency controller. 		<ul style="list-style-type: none"> - He/she is responsible for analysing the condition of the motor using the measuring results.
				<ul style="list-style-type: none"> - He/she is responsible for sharing knowledge, experience and insights so that electro technical products and systems will be tested properly.
Reference to national qualification:	The Netherlands	Sweden	Finland	Spain
	Middenkader Engineering Technicus (crebo 94421)	El och Energiprogrammet, inriktning Automation Industri tekniska programmet, inriktning Drift och underhållsteknik Teknikprogrammet, inriktning Produktionsteknik	Grundexamen inom el- och automationsteknik Grundexamen inom maskin- och metallbranschen	Automatización y robótica Industrial Técnico Superior en Mecatrónica Industrial Técnico superior en Mantenimiento de Equipo Industrial
Reference to NQF:	Level 4	N/A	N/A	Level 5
Reference to EQF:	Level 4*	Level 4*	Level 4*	Level 5*
ECVET points	N/A**			
Assessment:	Observations			

* The unit has been identified as part of the above mentioned national vocational qualifications and has by that been referenced to the same EQF level of the qualification.

** Further experimentation of the concept of ECVET points is required at European level before utilisation in practice.

Unit C Finland	Title of the unit: Working with analogue signals		
Prerequisites:	<ul style="list-style-type: none"> - Basic pneumatic systems - Basic knowledge of electricity - Basic knowledge about most common sensors (analogue, optical, inductive, capacitive) 		
Work tasks:	<ul style="list-style-type: none"> - Assembly, programming and commissioning of a production module including a (Logical) FBD-programmed PLC-system. - Creating simple on/off regulating PLC programs - Handling analogue signals, inputs and outputs, (0-10V or 4-20mA) in PLC programs. - Fault finding and recalibration of transmitters - Handling over-ranging and programming an open circuit for safety reasons 		
Learning Outcomes:	<i>Knowledge</i>	<i>Skills</i>	<i>Competence</i>
	<ul style="list-style-type: none"> - He/she knows how to describe the difference between analogue signals and digital signals - He/she knows how to describe the difference between bits, bytes, words and double-words. - He/she knows how to recognize the importance of using HIGH/LOW-limits in an analogue system. - He/she knows how to recognize syntax of FBD-language according to IEC 61131-3. 	<ul style="list-style-type: none"> - He/she is able to read analogue and digital signals in a simple PLC-program. - He/she is able to use analogue and digital signals in a simple PLC-program. - He/she is able to move data between functions in a PLC-program using the right data format. - He/she is able to determine when an analogue signal is behind the HIGH/LOW-level. 	<ul style="list-style-type: none"> - He/she is responsible for monitoring, calculating and scaling an analogue signal to a proper value. - He/she is responsible for creating a program controlling a digital output according to an analogue signal. - He/she is responsible for applying a HIGH/LOW-level limit to a program with analogue signals. - He/she is responsible for applying IEC 61131-3 to create a PLC-program using FBD.
	<ul style="list-style-type: none"> - He/she knows how to describe the difference between signal modes - He/she knows how to describe the use of a signal transmitter. 	<ul style="list-style-type: none"> - He/she is able to make the right settings to an analogue PLC input for current/voltage signals 	<ul style="list-style-type: none"> - He/she is responsible for applying the right combination of the settings of the analogue modules with the parameters of the sensors. - He/she is responsible for applying the right connections and wiring of a signal sensor to a transmitter and to a PLC analogue input/output to put it into service.
	<ul style="list-style-type: none"> - He/she knows how to describe the principle of a calibration. 	<ul style="list-style-type: none"> - He/she is able to check the function of a signal transmitter. 	<ul style="list-style-type: none"> - He/she is responsible for performing a complete calibration report. - He/she is responsible for creating a calibration protocol.
<ul style="list-style-type: none"> - He/she knows how to describe the 	<ul style="list-style-type: none"> - He/she is able to make a connection in an 	<ul style="list-style-type: none"> - He/she is responsible for creating a 	

	- principle of industrial bus systems. He/she knows how to describe how to move data from one unit to another using an industrial bus system	- industrial bus system. He/she is able to Make proper setting of addresses.	program with an industrial bus system.	
			- He/she is responsible for sharing knowledge, experience and insights so that electro technical products and systems will be tested properly.	
Reference to national qualification:	The Netherlands	Sweden	Finland	Spain
	Middenkader Engineering Technicus (crebo 94421)	El och Energiprogrammet, inriktning Automation Industri tekniska programmet, inriktning Drift och underhållsteknik Teknikprogrammet, inriktning Produktionsteknik	Grundexamen inom el- och automationsteknik Grundexamen inom maskin- och metallbranschen	Automatizacion y robotica Industrial Técnico Superior en Mecatrónica Industrial Técnico superiro en Mantenimiento de Equipo Industrial
Reference to NQF:	Level 4	N/A	N/A	Level 5
Reference to EQF:	Level 4*	Level 4*	Level 4*	Level 5*
ECVET points	N/A**			
Assessment:	Observations			

* The unit has been identified as part of the above mentioned national vocational qualifications and has by that been referenced to the same EQF level of the qualification.

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Unit D Sweden	Title of the unit: Working with safety systems
Prerequisites:	<ul style="list-style-type: none"> - Basic knowledge about most common sensors (optical, inductive, capacitive, mechanical) - Basic knowledge of machine safety - Basic knowledge of electricity - Basic pneumatic systems
Work tasks:	<ul style="list-style-type: none"> - Assembly, programming and commissioning of a production line including a ST-programmed Mitsubishi module based PLC-system. - Assembly, programming and commissioning of a production line controlled by a PLC-system including a safety system. (Failsafe PLC, electrical and mechanical safety components.) - Perform a risk assessment on a PLC-controlled production line.

- Fault finding in a PLC-controlled production line including a variety of sensors and actuators.					
Learning Outcomes:	<i>Knowledge</i>		<i>Skills</i>		<i>Competence</i>
	- He/she knows how to recognize syntax of ST-language according to IEC 61131-3.		- He/she is able to construct a simple logical function and/or sequence using ST-commands.		- He/she is responsible for applying IEC 61131-3 to create a PLC-program using ST.
	<ul style="list-style-type: none"> - He/she knows how to describe the difference between safety components and normal industrial components. - He/she knows how to describe the function of EU's machinery directive - He/she knows how to define the relationship between directives and standards. 		- He/she is able to construct and connect a production module using a few components including a PLC.		- He/she is responsible for applying risk evaluation protocol to perform risk assessment procedure according to EN ISO 14121 and EN ISO 12100.
	<ul style="list-style-type: none"> - He/she knows how to describe the difference between a failsafe PLC and a normal industrial PLC. - He/she knows how to describe the function of a few mechanical and electrical safety components. 		- He/she is able to connect mechanical and electrical safety components to a safety system controlled by relays or failsafe PLC.		- He/she is responsible for creating a program with a failsafe PLC.
	- He/she knows how to recognize the symbols used in schedules for industrial purposes.		<ul style="list-style-type: none"> - He/she is able to analyse a PLC-program and explain the function, including safety aspects. - He/she is able to test structural fault finding procedures in order to find faults in a production line controlled by PLC. 		- He/she is responsible for monitoring, analysing and modifying a PLC program after testing.
					- He/she responsible for sharing knowledge, experience and insights so that electro technical, safety and programmed products/systems will be tested properly.
Reference to national qualification:	The Netherlands	Sweden	Finland	Spain	
	Middenkader Engineering Technicus (crebo 94421)	El och Energiprogrammet, inriktning Automation Industri tekniska programmet, inriktning Drift och underhållsteknik Teknikprogrammet, inriktning	Grundexamen inom el- och automationsteknik Grundexamen inom maskin- och metallbranschen	Automatizacion y robotica Industrial Técnico Superior en Mecatrónica Industrial Técnico superior en Mantenimiento de Equipo	

		Produktionstechnik		Industrial
Reference to NQF:	Level 4	N/A	N/A	Level 5
Reference to EQF:	Level 4*	Level 4*	Level 4*	Level 5*
ECVET points	N/A**			
Assessment:	Observations			

* The unit has been identified as part of the above mentioned national vocational qualifications and has by that been referenced to the same EQF level of the qualification.

** Further experimentation of the concept of ECVET points is required at European level before utilisation in practice.

32. Language skills and competences acquired (if not included under 'Job-related skills and competences')

33. Computer skills and competences acquired (if not included under 'Job-related skills and competences')

34. Organisational skills and competences acquired (if not included under 'Job-related skills and competences')

35. Social skills and competences acquired (if not included under 'Job-related skills and competences')

36. Other skills and competences acquired

*=mandatory information