

Mobility Units for electricians

These units were drafted by a working group within the LDV network project EREIVET with 11 participants from 8 countries. They describe the following activities:

- A1 - Electrical installation of a metal processing factory
- A2 - Assembling and PLC-programming
- A 3 - Communication in a mobility-project

The following units can be used within geographical mobilities for 4 weeks and for 8 weeks to ensure the compliance with ECVET principles.

A grid for a possible assessment is attached.

For the EREIVET network:

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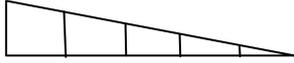
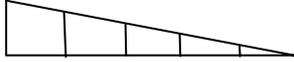
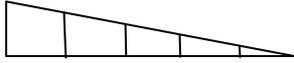
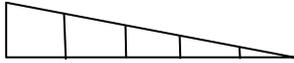
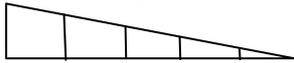
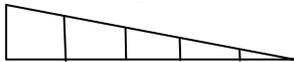
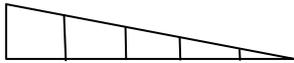
Name of the Unit:	A1 - Electrical installation of a metal processing factory		
Reference to the qualification:	Electrician		
Area of work tasks:	Electrical installation – PLC programming	EQF-level: 4	
Description of the Unit:	Planning and realizing electrical installation - Planning and constructing the switch box - Programming the Compact PLC (LOGO!) - Checking the installation – Documentation - Presentation of the project – planned for an 8 WEEKS MOBILITY!		
Knowledge	Skills	Competence	
He/She: <ul style="list-style-type: none"> • is able to provide a general overview of the basic installation rules of electrical installation • has knowledge of servicing- and maintenance assignments in electrical engineering • can explain the basic installation symbols of electrical documentations and plans • is familiar with the necessary tools according to the work order • recognizes how to work in compliance with occupational safety instructions • knows the necessary electrical equipment and devices 	He/She is able to: <ul style="list-style-type: none"> • mount electrical equipment and devices according to the rules in the foreign country by using the documents • select the wires and cables to be used and pull them professionally by using an installation plan • wire the components and connect cables to the distribution board by using plans, accurate methods and tools • initialize the system by using operating instructions, drawings and documents • test the function of the installed components and repair malfunctions • write a report about the personal experiences in a working process • 	He/She: <ul style="list-style-type: none"> • is able to assume responsibility for own work • masters the applied work independently • adapts own behavior to circumstances in solving problems • is able to integrate into a team • develops strategies for coping with unexpected situations in daily routines • keeps the working hours and is punctual 	
Additional information: The Unit refers to the Austrian curriculum for electricians.			
Developed & adapted by: Ing. Christian Pauler – Ing. Gernot Grinschgl - LBS Eibiswald – Austria			www.ereivet.net

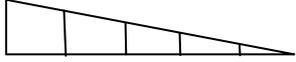
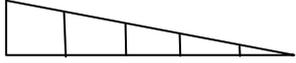
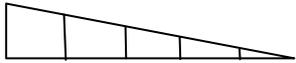


Name of the Unit:	A2- Assembling and PLC-programming		
Reference to the qualification:	Electrician		
Area of work tasks:	PLC programming	EQF-level: 4	
Description of the Unit: creating CAD drawing - <i>Programming the Compact PLC (LOGO!)</i> - reading and understanding operating instructions - setting up the control device - developing programs by an existing plan - testing the programs - writing documentation – planned for an 4 WEEKS MOBILITY!			
Knowledge	Skills	Competence	
He/She: <ul style="list-style-type: none"> • is able to describe the necessary components for simple automation systems with compact PLCs • can read and understand operating instructions of PLCs in English language • knows how to install and configure the software for programming PLCs • knows the necessary programming language and symbols for simple industrial applications 	He/She is able to: <ul style="list-style-type: none"> • select, set up and adjust a PLC and necessary software • install and wire sensors and actuators according to the rules in the foreign country by using the documents • develop programs for simple applications in a metal processing workshop (e.g. star-delta starter) • diagnose and repair errors and malfunctions on simple components and programs of the PLC • provide a technical documentation (e.g. manual) about a simple automated system • write a report about the personal experiences in a working process 	He/She: <ul style="list-style-type: none"> • is able to assume responsibility for own work • masters the applied work independently • adapts own behavior to circumstances in solving problems • is able to integrate into a team • develops strategies for coping with unexpected situations in daily routines • keeps the working hours and is punctual 	
Additional information: The Unit refers to the Austrian curriculum for electricians.			
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Name of the Unit:	A 3 -Communication in a mobility-project		
Reference to the qualification:	Electrician or any other		
Area of work tasks:	Communicate within a project abroad	EQF-level:	DQR-level:
Description of the Unit: What is needed for communication abilities in a mobility project			
Knowledge	Skills	Competence	
He/She: <ul style="list-style-type: none"> • knows basic English vocabulary and phrases • knows basic technical English • knows methods of research inside the web • knows methods of communication with and without internet 	He/She is able to: <ul style="list-style-type: none"> • introduce him/herself to foreign people and communicate about the job and leisure time activities • read and understand technical documentations in English language • analyze and discuss about technical information in English language • present results of a changing project in English language 	He/She: <ul style="list-style-type: none"> • communicates in a professional technical way in English language • discusses about technical and operational level • uses modern ways of business communication • develops culturally sensitive empathy, prejudice, freedom and tolerance of ambiguity 	
Additional information:.			
Adapted by: Ing. Christian Pauler – Ing. Gernot Grinschgl - LBS Eibiswald – Austria		www.ereivet.net	

ASSESSMENT OF SKILLS ACQUIRED PERIOD TRAINING IN THE WORKPLACE		
Professionnal		ASSESSMENT
LO 1:	He/She is able to read and understand electrical/electronic plans by using the standard symbols in his/her specific field of expertise	100% Independant 0% 
	C1.4	
LO 2:	He/She knows and respects the basic security safety-rules on a national level as well as on the level of the hosting country.	100% Independant 0% 
	C1.4 C5.4 (S6.3)	
LO 3:	He/She knows or recognizes the specific tools used in his/her specific field of expertise.	100% Independant 0% 
LO 4:	He/She can select and use the correct tool in his/her specific field of expertise.	100% Independant 0% 
LO 5:	He/She knows the necessary components, materials and auxiliary material for his/her specific task(s).	100% Independant 0% 
	? C2-5	
LO 6:	He/She can choose, implement/install or mount the right components, materials in his/her fields of expertise.	100% Independant 0% 
	C2-5 (S0-6, S1-4, S2-2, S2-3, S2-4, S4-7) Install C2-4 (S0-6, S1-4, S2-2, S2-3, S2-4, S4-5, S4-7) Adapt and modify	
LO 7:	He/She can connect the necessary parts to a running system by using the specific correct connections.	100% Independant 0% 
	C2-6 (S0-6; S1-4) Electromagnetic compatibility, Distribution of energy C2-6 (S4-1, S4-2, S4-5, S4-7) Communication and information processing (Programmable automation, sensors, ...)	

LO 8:	He/She is able to set the necessary/given parameters or do the programming work to initialize a system he/she is working on or in a given system.	100% Independent 0% 
LO 9:	He/She is able to check/test a system be using given criterias with specific equipment in his/her specific expertise.	100% Independent 0% 
	C4-6 Update documents after commissioning	
LO 10:	He/She is able to locate, identify and repair malfunctions.	100% Independent 0% 
SOCIAL		
LO 1:	He/She is able to define and follow a schedule.	100% Independent 0% 
	C5.4 (S7-6)	
LO 2	He/she is able to change the scheduling of activities	100% Independent 0% 
	C2-3 (S7-6)	
LO 3	He/she is able to transmit information about the changes done	100% Independent 0% 
	C4-6 (S7-7) Commissioning	
LO 4	He/she is able to behave as a professional	100% Independent 0% 
LANGUAGE		
LO 20:	He/She is able to transmit information about worksituations in foreign language.	100% Independent 0% 
	C4-5 (S7-7) Communicate	
LO 31	He is able to ask the client about their needs, advise the client and submit solutions.	100% Independent 0% 
	C1-1 S2-2 S2-3 S7-4 Business customer relationship	

Milestones	8 weeks	4 weeks
<ul style="list-style-type: none"> • <i>Planning and realizing electrical installation</i> <ul style="list-style-type: none"> ○ planning according to specifications (hand sketch) ○ creating CAD drawing ○ specifying material ○ mounting electrical equipment and devices ○ wiring components ○ testing function, repairing malfunction 	X X X X X X	
<ul style="list-style-type: none"> • <i>Planning and constructing the switch box</i> <ul style="list-style-type: none"> ○ creating CAD drawing ○ mounting electrical equipment and devices ○ wiring components ○ testing function, repairing malfunction 	X X X X	X
<ul style="list-style-type: none"> • <i>Programming the Compact PLC (LOGO!)</i> <ul style="list-style-type: none"> ○ reading and understanding operating instructions ○ setting up the control device ○ developing programs by an existing plan ○ testing the programs ○ writing documentation 	X X X X X	X X X X X
<ul style="list-style-type: none"> • <i>Checking the installation</i> <ul style="list-style-type: none"> ○ checking protective measures according to current standards 	X X	
<ul style="list-style-type: none"> • <i>Documentation</i> <ul style="list-style-type: none"> ○ creating necessary operating instructions ○ installation directory ○ CAD drawings 	X X X X	
<ul style="list-style-type: none"> • <i>Presentation of the project</i> 	X	X