



Co-funded by
the European Union



P4ELECS

Platform for
Electrification Skills
& Competences

©P4ELECS

www.p4elecs.com

D2.2

**Model for Skills Intelligence Skills
Mapping**

Occupations in the Smart home workforce

Martijn van Bommel - 13 March 2026

ISSO

Occupation:	<u>Electrician</u>	EQF Level:	5	ULOS (Units of Learning Outcomes)		
Tasks and responsibilities:		Level of competence:	Knowledge	Skills	Attitude	
a)	The electrician is able to install, maintain, and repair electrical wiring systems and related equipment in various buildings such as schools, hospitals, commercial establishments, residential buildings, and other structures;	2, 3	The electrician can <i>maintain</i> ² electrical wiring systems and related equipment in various buildings such as schools, hospitals, commercial establishments, residential buildings and other structures.	The electrician can <i>install</i> ³ and <i>repair</i> ² electrical wiring systems and related equipment in various buildings such as schools, hospitals, commercial establishments, residential buildings and other structures.	The electrician works carefully and safely when installing and maintaining electrical wiring systems in different building environments	
b)	The electrician is able to examine blueprints, wiring diagrams, and specifications to determine sequences and methods of operation;	3	The electrician can <i>examine</i> ³ blueprints, wiring diagrams and specifications to determine sequences and methods of operation.	The electrician can interpret blueprints, wiring diagrams and specifications to prepare electrical installation activities.	The electrician works accurately when interpreting technical drawings and specifications	
c)	The electrician is able to plan layout and installation of electrical wiring, equipment, and fixtures, based on job specifications and relevant standards;	5	The electrician can <i>plan</i> ⁵ layout and installation of electrical wiring, equipment and fixtures, based on job specifications and relevant standards.	The electrician can design installation layouts for electrical wiring, equipment and fixtures according to technical standards and project specifications	The electrician ensures that installation plans comply with technical standards and safety regulations.	
d)	The electrician is able to inspect electrical systems, equipment, and components to identify hazards, defects, and the need for adjustment or repair;	3	The electrician can <i>examine</i> ³ electrical systems, equipment, and components to identify hazards, defects, and the need for adjustment or repair.	The electrician can inspect electrical systems and components to detect faults, safety risks and necessary adjustments	The electrician prioritizes safety and reliability when assessing electrical installations.	
e)	The electrician is able to select, cut, and connect wire and cable to terminals and connectors;	3,5	The electrician can <i>select</i> ³ and <i>shape</i> ⁵ wire and cable to terminals and connectors.	The electrician can <i>connect</i> ³ wire and cable to terminals and connectors.	The electrician works precisely when selecting and connecting wiring components.	
f)	The electrician is able to measure and lay out installation reference points;	2	The electrician can explain methods for measuring and determining installation reference points.	The electrician can <i>measure</i> ² and laying out installation reference points	The electrician ensures accuracy when determining installation positions and measurements	
g)	The electrician is able to position and install electrical switchboards;	3,2	The electrician can describe the installation requirements for electrical switchboards.	The electrician can <i>install</i> ³ and <i>place</i> ² electrical switchboards.	The electrician ensures safe and correct installation of electrical switchboards according to standards.	
h)	The electrician is able to test continuity of circuits.	2	The electrician can explain the principles of circuit continuity testing.	The electrician can <i>test</i> ² continuity of circuits	The electrician verifies electrical connections carefully to ensure reliable circuit operation.	

i)	The electrician is able to apply fundamental mathematical calculations to ensure precision in electrical work and effective problem-solving in both residential and industrial circuits, with a particular focus on smart home systems .	3	The electrician can explain fundamental mathematical principles to ensure accurate circuit analysis and effective problem-solving in smart home and industrial electrical systems.	The electrician can apply fundamental mathematical calculations to measure electrical parameters, analyze circuits, and troubleshoot issues in smart home installations.	The electrician demonstrates precision and critical thinking in applying mathematical techniques to optimize electrical system performance in smart home environments.
j)	The electrician is able to interpret technical documents accurately and collaborate efficiently with team members and stakeholders.	3	The electrician can interpret technical schematics, manuals, and documentation to ensure proper installation, maintenance, and troubleshooting of electrical systems.	The electrician can analyze and apply information from technical documents while effectively communicating and collaborating with engineers, clients, and team members.	The electrician actively cooperates with team members and stakeholders to ensure accuracy and efficiency in electrical projects.
k)	The electrician is able to demonstrate a foundational understanding of PLCs, automation, and energy efficiency in electrical systems.	3	The electrician can describe the principles of PLC programming, automation, and energy-efficient technologies relevant to smart home electrical systems.	The electrician can configure and test basic PLC automation systems while implementing energy-efficient solutions for smart home installations.	The electrician promotes the adoption of automation and energy-efficient technologies to enhance sustainability and optimize electrical performance.

Occupation:	Smart home engineer	EQF Level:	6	ULOS (Units of Learning Outcomes)		
Tasks and responsibilities:		Level of competence:	Knowledge	Skills	Attitude	
a)	The smart home engineer is able to design and advise on electrical energy systems in smart homes and buildings, including renewable energy sources and energy storage.	4,5	The smart home engineer can explain the principles of electrical energy systems in buildings, including renewable energy generation, energy storage and smart grid integration.	The smart home engineer can explain the principles of electrical energy systems in buildings, including renewable energy generation, energy storage and smart grid integration.	The smart home engineer can explain the principles of electrical energy systems in buildings, including renewable energy generation, energy storage and smart grid integration.	
b)	The smart home engineer is able to supervise, control and monitor the operation of electrical generation, transmission and distribution systems;	2,3	The smart home engineer can describe the operation of electrical generation, transmission and distribution systems.	The smart home engineer can describe the operation of electrical generation, transmission and distribution systems.	The smart home engineer can describe the operation of electrical generation, transmission and distribution systems.	
c)	The smart home engineer is able to design and integrate electrical devices, appliances and smart equipment in smart home environments	4,5	The smart home engineer can explain the operating principles of electrical devices, smart appliances and connected equipment.	The smart home engineer can explain the operating principles of electrical devices, smart appliances and connected equipment.	The smart home engineer can explain the operating principles of electrical devices, smart appliances and connected equipment.	
d)	The smart home engineer is able to specify electrical and building automation installations in residential and commercial buildings	3	The smart home engineer can describe standards, architectures and communication protocols used in electrical and building automation systems	The smart home engineer can describe standards, architectures and communication protocols used in electrical and building automation systems.	The smart home engineer can describe standards, architectures and communication protocols used in electrical and building automation systems.	
e)	The smart home engineer is able to establish control standards and procedures to monitor performance and safety of electrical generating and distribution systems, motors and equipment;	4	The smart home engineer can explain monitoring methods and safety principles for electrical systems and equipment.	The smart home engineer can explain monitoring methods and safety principles for electrical systems and equipment.	The smart home engineer can explain monitoring methods and safety principles for electrical systems and equipment.	
f)	The smart home engineer is able to determine manufacturing methods for electrical systems, as well as maintenance and repair of existing electrical systems, motors and equipment.	4	The smart home engineer can explain manufacturing, maintenance and repair principles for electrical systems and equipment.	The smart home engineer can explain manufacturing, maintenance and repair principles for electrical systems and equipment.	The smart home engineer can explain manufacturing, maintenance and repair principles for electrical systems and equipment.	
g)	The smart home engineer is able to program automation systems and configure their operation, both from a hardware and software perspective.	4,5	The smart home engineer can explain automation system programming principles and configuration methods for both hardware and software components.	The smart home engineer can program automation systems using languages like Python and KNX while configuring communication protocols such as MQTT and Zigbee to ensure seamless device integration.	The smart home engineer follows best practices in automation system programming and configuration to enhance reliability and efficiency in smart home environments.	
h)	The smart home engineer is able to apply AI tools and resources for system optimization.	3	The smart home engineer can describe AI-based tools and machine learning techniques used for optimizing smart home automation and energy efficiency.	The smart home engineer can implement AI-driven automation by integrating machine learning algorithms for predictive maintenance, energy optimization, and personalized user experiences.	The smart home engineer promotes AI adoption for enhancing smart home efficiency, sustainability, and user-centric automation.	