



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 photovoltaic energy workforce

Martijn van Bommel - 13 March 2026

ISSO

Occupation:	<u>Electrical engineer</u>	EQF Level:	7	ULOS (Units of Learning Outcomes)		
Tasks and responsibilities:		Level of competence:	Knowledge	Skills	Attitude	
a)	The electrical engineer advises on and designs decentralized power generation systems that generate, transmit, and distribute electrical power.	5	The electrical engineer designs decentralized power generation systems to generate, transmit, and distribute electrical power.	The electrical engineer creates decentralized power generation system configurations based on performance requirements and operational needs.	The electrical engineer proposes improvements to decentralized power generation systems to enhance efficiency in power generation, transmission, and distribution.	
b)	The electrical engineer designs, supervises and monitors the operation of decentralized power generation systems, where monitoring functionality is given.	5	The electrical engineer structures the design and supervision approach for decentralized power generation systems with integrated monitoring functionality.	The electrical engineer builds operational workflows for decentralized power generation systems with embedded monitoring capabilities.	The electrical engineer verifies the proper functioning of monitoring functionality within decentralized power generation systems under operational conditions.	
c)	The electrical engineer advises on and designs systems for power electronics, energy storage, grid integration, or other electrical equipment.	5	The electrical engineer develops systems for power electronics, energy storage, grid integration, or other electrical equipment to meet specific energy requirements.	The electrical engineer constructs integration solutions for energy storage, grid systems, and power electronics in electrical infrastructure.	The electrical engineer modifies system designs to optimize power electronics, storage, or grid integration solutions.	
d)	The electrical engineer specifies electrical installation and application in industrial and other buildings and objects.	3	The electrical engineer specifies electrical installation and application in industrial and other buildings and objects according to technical requirements.	The electrical engineer coordinates electrical installation and application in various industrial and building projects to meet specifications.	The electrical engineer justifies the selected electrical installation and application when designing for industrial and other buildings and objects.	
e)	The electrical engineer establishes control standards and procedures to monitor performance and safety of electrical generating and distribution systems, and equipment.	4	The electrical engineer establishes control standards and procedures to monitor performance and safety of electrical generating and distribution systems and equipment.	The electrical engineer assesses the effectiveness of control standards and procedures to ensure ongoing safety and performance in generating and distribution systems.	The electrical engineer integrates control standards and procedures into the operation of electrical generating and distribution systems to support safety and performance monitoring.	
f)	The electrical engineer determines manufacturing methods for electrical systems, as well as maintenance and repair of existing electrical systems, and equipment.	4	The electrical engineer elaborates manufacturing methods for electrical systems and procedures for maintenance and repair of existing systems and equipment.	The electrical engineer updates manufacturing methods and maintenance procedures to improve performance and longevity of electrical systems and equipment.	The electrical engineer formulates improvements to manufacturing, maintenance, and repair processes based on evolving system requirements.	

Occupation:	<u>Solar energy engineer</u>	EQF Level:	7	ULOS (Units of Learning Outcomes)		
Tasks and responsibilities:		Level of competence:		Knowledge	Skills	Attitude
a)	The solar energy engineer installs components of optical instruments that utilizes the properties of light.	5		The solar energy engineer explains the function of optical instruments that utilize the properties of light for solar energy applications .	The solar energy engineer builds optical instrument components to support light-based functionality in solar systems .	The solar energy engineer self-evaluates the accuracy and alignment of installed optical components to ensure performance under light-based operation .
b)	The solar energy engineer designs cover sheets for photovoltaic and solar thermal cover sheets to maximize transmission the of solar irradiation and to minimize reflection and absorption	5		The solar energy engineer designs cover sheets for photovoltaic and solar thermal systems to optimize solar irradiation transmission .	The solar energy engineer creates prototypes of cover sheets to reduce reflection and absorption in photovoltaic and thermal systems .	The solar energy engineer verifies the optical efficiency of cover sheet designs under conditions of solar irradiation .
c)	The solar energy engineer advises on engineering aspects of particular manufacturing processes, such as those related to glass, ceramics, textiles, leather products, wood, and printing.	4		The solar energy engineer advises on engineering aspects of manufacturing processes related to materials such as glass, ceramics, textiles, leather, wood, and printing .	The solar energy engineer adapts engineering solutions to meet the specific requirements of manufacturing processes in various materials .	The solar energy engineer collaborates with manufacturing teams to integrate engineering aspects into processes for glass, ceramics, textiles, and related materials .
d)	The solar energy engineer identifies potential hazards and introduces safety procedures and devices.	3		The solar energy engineer identifies potential hazards in solar energy systems to introduce safety procedures and devices .	The solar energy engineer conducts hazard identification and safety planning to implement safety procedures and devices in solar installations .	The solar energy engineer promotes safety procedures and the use of devices to prevent potential hazards in solar energy systems .

Occupation:	<u>Electrical engineering technician</u>	EQF Level:	6	ULOS (Units of Learning Outcomes)		
Tasks and responsibilities:		Level of competence:	Knowledge	Skills	Attitude	
a)	The electrical engineering technician advise technical assistance in research on and development of electrical equipment and facilities or tests prototypes	4	The electrical engineering technician supports research and development of electrical equipment and facilities or prototype testing by providing technical assistance.	The electrical engineering technician reorganises testing and development procedures to improve technical support for prototype validation and equipment development.	The electrical engineering technician involves themselves in research and development activities to provide meaningful technical assistance for equipment and prototype testing.	
b)	The electrical engineering technician designs and prepares blueprints of electrical installations and circuitry according to the specifications given	5	The electrical engineering technician drafts blueprints of electrical installations and circuitry based on given specifications.	The electrical engineering technician designs electrical installations and circuitry using blueprint tools in accordance with specifications.	The electrical engineering technician revises electrical blueprints to meet updated specifications or technical corrections.	
c)	The electrical engineering technician prepares detailed estimates of quantities and costs of materials and labor required for manufacture and installation, according to the specifications given	3	The electrical engineering technician calculates quantities and costs of materials and labor for manufacture and installation based on specifications.	The electrical engineering technician organises detailed estimates for material and labor costs for manufacture and installation according to project plans.	The electrical engineering technician completes cost and quantity estimations by following given specifications and project requirements.	
d)	The electrical engineering technician monitors technical aspects of the manufacture, installation, utilization, maintenance, and repair of electrical systems and equipment to ensure satisfactory performance and compliance with specifications and regulations	2	The electrical engineering technician monitors technical aspects of the manufacture, installation, utilization, maintenance, and repair of electrical systems and equipment to ensure satisfactory performance and compliance with specifications and regulations.	The electrical engineering technician tests electrical systems and equipment during manufacture, installation, utilization, maintenance, and repair to ensure compliance with performance standards.	The electrical engineering technician reports technical aspects of system performance and compliance throughout the manufacture, installation, utilization, maintenance, and repair of electrical systems and equipment.	
e)	The electrical engineering technician plans installation methods, checks completed installations for safety and controls, or undertakes the initial running of new electrical equipment or systems	5	The electrical engineering technician plans installation methods and startup procedures for new electrical equipment or systems.	The electrical engineering technician constructs electrical setups and performs initial runs in line with safety checks and control requirements.	The electrical engineering technician verifies completed installations for compliance with safety and operational standards.	
f)	The electrical engineering technician assembles, installs, tests, calibrates, modifies, and repairs electrical equipment and installations to conform with regulations and safety requirements	3	The electrical engineering technician specifies procedures for assembling, installing, testing, calibrating, modifying, and repairing electrical equipment and installations in compliance with regulations and safety requirements.	The electrical engineering technician installs and calibrates electrical equipment and installations to conform with regulations and safety requirements.	The electrical engineering technician respects safety requirements and regulations when modifying or repairing electrical equipment and installations.	

Occupation:	<u>Solar energy technician</u>	EQF Level:	6	ULOS (Units of Learning Outcomes)		
Tasks and responsibilities:		Level of competence:	Knowledge	Skills	Attitude	
a)	The solar energy technician installs, maintains, and repairs electrical wiring systems and related equipment in various buildings such as schools, hospitals, commercial establishments, residential buildings, and other structures.	3	The solar energy technician relates electrical wiring systems and related equipment to their functions in buildings like schools, hospitals, and other structures.	The solar energy technician installs and repairs electrical wiring systems and related equipment in buildings such as schools, hospitals, and residences.	The solar energy technician undertakes maintenance tasks on electrical wiring systems and related equipment in various buildings with responsibility.	
b)	The solar energy technician examines blueprints, wiring diagrams, and specifications to determine sequences and methods of operation.	3	The solar energy technician examines blueprints, wiring diagrams, and specifications to determine operational sequences and methods.	The solar energy technician diagnoses operational requirements based on wiring diagrams, blueprints, and specifications.	The solar energy technician reads and interprets specifications and diagrams to follow the correct methods of operation.	
c)	The solar energy technician plans the layout and installation of electrical wiring, equipment, and fixtures based on job specifications and relevant standards.	5	The solar energy technician plans the layout for installation of electrical wiring, equipment, and fixtures according to job specifications and standards.	The solar energy technician builds wiring and fixture layouts in alignment with planned installation procedures and standards.	The solar energy technician intervenes in the planning process to ensure installation follows job specifications and safety standards.	
d)	The solar energy technician inspects electrical systems, equipment, and components to identify hazards, defects, and the need for adjustment or repair.	3	The solar energy technician identifies hazards and defects in electrical systems, equipment, and components requiring adjustment or repair.	The solar energy technician inspects electrical systems, equipment, and components to detect potential hazards and faults.	The solar energy technician reports identified hazards and repair needs during inspection of electrical systems and components.	
e)	The solar energy technician selects, cuts, and connects wire and cable to terminals and connectors.	3	The solar energy technician selects appropriate wire and cable for connection to terminals and connectors.	The solar energy technician connects wire and cable to terminals and connectors by cutting and fitting according to specifications.	The solar energy technician follows technical guidelines when selecting and connecting wires and cables to terminals and connectors.	
f)	The solar energy technician measures and lays out installation reference points.	2	The solar energy technician demonstrates the use of installation reference points in the context of measuring and laying out solar systems.	The solar energy technician measures and stakes out installation reference points on site to ensure accurate placement of solar energy equipment.	The solar energy technician assists with the layout of installation reference points by following technical plans and site conditions.	
g)	The solar energy technician positions and installs electrical switchboards.	3	The solar energy technician identifies the requirements for positioning and installing electrical switchboards in solar energy systems.	The solar energy technician installs electrical switchboards in accordance with system layout and installation procedures.	The solar energy technician takes part in the proper positioning and installation of electrical switchboards to ensure system integrity.	
h)	The solar energy technician tests the continuity of circuits.	2	The solar energy technician indicates the procedures and tools required to test the continuity of circuits in solar energy systems.	The solar energy technician tests the continuity of circuits in installed solar systems to verify electrical integrity.	The solar energy technician responds to continuity test results by communicating outcomes and cooperating on troubleshooting steps.	