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**Model for Skills Intelligence Skills
Mapping**

Occupations in the Public lighting workforce

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ISSO

Occupation:	Electronics Engineer	EQF Level:	7	ULOS (Units of Learning Outcomes)		
Tasks and responsibilities:		Level of competence:	Knowledge	Skills	Attitude	
a)	The electronics engineer advises on and designs electronic devices or components, circuits, semiconductors, and systems.	4	The electronics engineer can advise ⁴ on and designing electronic devices or components, circuits, semi-conductors, and systems;			
b)	The electronics engineer specifies production or installation methods, materials, and quality standards, and directs the production or installation work of electronic products and systems.	3	The electronics engineer can specify ³ production or installation methods, materials and quality standards, and directing production or installation work of electronic products and systems;			
c)	The electronics engineer establishes control standards and procedures to ensure efficient functioning and safety of electronic systems, motors, and equipment.	4	The electronics engineer can establish ⁴ control standards and procedures to ensure efficient functioning and safety of electronic systems, motors and equipment;			
d)	The electronics engineer organizes and directs the maintenance and repair of existing electronic systems and equipment.	3		The electronics engineer can organise ³ and directing maintenance and repair of existing electronic systems and equipment;		
e)	The electronics engineer designs electronic circuits and components for use in fields such as aerospace guidance and propulsion control, acoustics, or instruments and controls.	5		The electronics engineer can design ⁵ electronic circuits and components for use in fields such as aerospace guidance and propulsion control, acoustics, or instruments and controls;		
f)	The electronics engineer researches and advises on radar, telemetry, and remote control systems, microwaves, and other electronic equipment.	3	The electronics engineer can research ³ and advising on radar, telemetry and remote control systems, microwaves and other electronic equipment;			
g)	The electronics engineer designs and develops signal processing algorithms and implements these through the appropriate choice of hardware and software.	5		The electronics engineer can design ⁵ and developing signal processing algorithms and implementing these through appropriate choice of hardware and software;		
h)	The electronics engineer develops apparatus and procedures to test electronic components, circuits, and systems.	5	The electronics engineer can develop ⁵ apparatus and procedures to test electronic components, circuits and systems.			

i)	The electronics engineer verifies basic electrical calculations (current, voltage, power), constructs the electrical design of different luminaire types, and compiles laboratoric electrical measurements including voltage, current, THD, and harmonics for performance validation.	5	The electronics engineer specifies basic electrical calculations (current, voltage, power), as part of electrical system development in the context of luminaire design.	The electronics engineer initiates laboratoric electrical measurements including voltage, current, THD, and harmonics during testing procedures for luminaire performance validation.	The electronics engineer verifies electrical calculations and measurements during luminaire validation with a strong sense of accuracy and professional responsibility.
j)	The electronics engineer combines and structures luminaire communication systems by specifying suitable communication types and applications for indoor and outdoor environments, including sensor integration and connection to Central Management Systems.	5	The electronics engineer structures suitable communication types and applications, during the development of indoor and outdoor luminaire systems.	The electronics engineer constructs luminaire communication systems including sensor integration and CMS connection, during the design and implementation of connected lighting solutions.	The electronics engineer proposes the structure of communication systems to ensure functional integration in luminaires with a proactive and solution-oriented mindset.
k)	The electronics engineer runs various types of goniophotometers, executes standardized photometric measurement procedures, and measures blue light hazards to comply with lighting safety guidelines.	2	The electronics engineer demonstrates the function of different goniophotometers and their role, while performing photometric measurement procedures in lighting laboratories.	The electronics engineer measures blue light hazards using standardized procedures as part of the compliance process with lighting safety guidelines.	The electronics engineer responds to safety regulations while measuring photometric parameters using appropriate instruments with full commitment to compliance and safety.
l)	The electronics engineer develops advanced PCB design skills using CAD software such as Altium or alternatives to design optimized layouts and ensure electronic compatibility within luminaires.	5	The electronics engineer conceptualises advanced PCB layout principles, during the design phase to ensure electronic compatibility within luminaire systems.	The electronics engineer creates PCB layouts using CAD software such as Altium or alternatives during the development phase of electronic circuits for luminaire integration.	The electronics engineer revises advanced PCB designs with precision and attention to detail demonstrating a commitment to continuous improvement and high-quality standards.
m)	The electronics engineer acquires a fundamental understanding of light propagation and estimates basic lighting lens calculations to support optical system development within luminaire designs.	1	The electronics engineer learns fundamental principles of light propagation and lens calculation theory for lighting design, during the early stages of optical system design for lighting applications.	The electronics engineer identifies basic lighting lens parameters to support optical system development in luminaires during initial optical design evaluations.	The electronics engineer identifies optical principles in luminaire design with curiosity and engagement, reflecting a keen interest in deepening technical understanding.
n)	The electronics engineer selects basic 3D models and mechanical constructions of different luminaire types, documents technical drawings, and chooses CAD tools such as SolidWorks, Creo, or SolidEdge for mechanical design tasks.	1	The electronics engineer describes mechanical construction features of different luminaire types and selects relevant CAD tools, while supporting the mechanical design process.	The electronics engineer chooses 3D models and describes technical drawings using SolidWorks, Creo, or SolidEdge in the context of mechanical design and documentation of luminaire components.	The electronics engineer selects appropriate tools and describes mechanical designs with responsibility and a focus on engineering integrity.
o)	The electronics engineer employs electrical and mechanical simulators and constructs digital twins to monitor and optimise the performance of lighting systems in virtual environments.	2	The electronics engineer relates the concept and function of digital twins to lighting system optimization, within simulated and virtual testing environments.	The electronics engineer assembles digital twins using electrical and mechanical simulators to run system performance tests, in a virtual prototyping and analysis environment.	The electronics engineer introduces simulation tools to optimise lighting system behaviour, showing innovation and a forward-thinking approach.

p)	The electronics engineer adopts the basics of production technologies and includes aluminum die-casting, extrusion (aluminum/plastic/silicone), glass processing, plastic injection, abrasive processing, welding, powder coating, anodising, 3D printing, and machining relevant to luminaire manufacturing.	2	The electronics engineer includes basic production technologies relevant to luminaire manufacturing such as casting, extrusion, and coating methods, during the design-for-manufacture phase.	The electronics engineer applies relevant production technologies in the context of luminaire design and development, especially during material selection and manufacturing planning.	The electronics engineer looks after appropriate manufacturing processes in product development, with care, diligence, and respect for quality standards.
q)	The electronics engineer adapts rapid prototyping methods and evaluates verification procedures before production to validate design functionality and manufacturability.	4	The electronics engineer evaluates key principles of rapid prototyping and pre-production verification methods, when preparing for functional testing and manufacturability checks.	The electronics engineer adapts prototyping methods and assesses design functionality prior to production, as part of the product validation and iteration cycle.	The electronics engineer approves continuous testing as part of responsible product development, valuing thoroughness and long-term reliability.
r)	The electronics engineer prepares technical documentation including Bill of Materials (BOM), part order specifications, assembly manuals, and user manuals to support product development and manufacturing processes.	3	The electronics engineer specifies types of technical documentation including BOMs, part order specs, and user manuals, as required during the product development and handover process.	The electronics engineer assembles product documentation to fulfil manufacturing and assembly processes, during the preparation of technical handover packages.	The electronics engineer prepares technical documents with clarity and structure, showing respect for precision and effective communication.
s)	The electronics engineer identifies relevant lighting certifications and standards, cooperates with certification laboratories, and manages the certification process to ensure regulatory compliance.	3	The electronics engineer examines key lighting certifications and relevant international standards, during the compliance assessment and product qualification phases.	The electronics engineer coordinates the certification process in cooperation with accredited laboratories, during the product compliance and approval phase.	The electronics engineer follows regulatory frameworks to ensure compliant product development, demonstrating accountability and ethical awareness.
t)	The electronics engineer analyses the market and compares key competitors in the lighting industry to justify design decisions and maintain competitive product positioning.	3	The electronics engineer analyses market trends and distinguishes key competitors in the lighting sector to support strategic design and development decisions.	The electronics engineer conducts competitor feature analysis to justify luminaire design decisions, in the context of market research and benchmarking.	The electronics engineer explains awareness of competitive positioning in the lighting industry, showing strategic insight and market-oriented thinking.
u)	The electronics engineer implements indoor and outdoor lighting calculations using software such as DIALux, Relux, and AGI32, applies basic lighting theory, and assesses real-world project examples, including price-focused, efficacy-focused, and green-focused scenarios.	2	The electronics engineer adopts basic indoor and outdoor lighting theory using DIALux, Relux, and AGI32, in the context of lighting simulation and planning.	The electronics engineer processes lighting calculations and tests scenarios including price, efficacy, and sustainability, during the design and simulation of lighting projects.	The electronics engineer reports lighting decisions based on both technical and economic considerations with transparency and professional judgment.
v)	The electronics engineer integrates fast information search methods and combines AI technologies to assess information and conduct technical research in the lighting field.	4	The electronics engineer assesses information using fast methods and AI-based technologies, while conducting technical research in the lighting field.	The electronics engineer configures AI tools to transform technical research processes effectively, in the context of engineering innovation and knowledge discovery.	The electronics engineer integrates AI for technical purposes with curiosity and adaptability, embracing innovation and continuous learning.
w)	The electronics engineer conceptualises solutions using first principle thinking by applying deconstructional reasoning, rapid learning techniques, and strategies to solve complex design and engineering challenges.	5	The electronics engineer relates first principle thinking to problem-solving in lighting engineering, during the development of innovative or complex solutions.	The electronics engineer builds solutions through deconstructional reasoning and rapid learning strategies, during the resolution of complex design or technical challenges.	The electronics engineer self-evaluates when solving complex design challenges, demonstrating self-awareness, growth mindset, and reflective thinking.

x)	The electronics engineer programs principles of automation into repetitive engineering tasks, explores AI tools including large language models, AI agents, and AI-powered research systems, and builds automation processes with AI support to improve efficiency.	3	The electronics engineer relates principles of work automation and AI-based engineering tools to modern engineering practices aimed at improving workflow and efficiency.	The electronics engineer builds automation processes using AI tools such as LLMs and AI agents, to enhance efficiency in routine engineering tasks and workflows.	The electronics engineer undertakes automation strategies to increase engineering efficiency with initiative and a drive for optimisation.
y)	The electronics engineer organises project planning and leading by drawing Gantt charts and handling project management software such as ASANA, ClickUp, Microsoft Project, and others to assure development timelines and milestones are met.	2	The electronics engineer organises project planning fundamentals and the use of tools like Gantt charts and software platforms, as part of the coordination and management of engineering projects.	The electronics engineer handles and sets up projects using software such as ASANA, ClickUp, and Microsoft Project, in the context of planning and managing development activities and timelines.	The electronics engineer assists in project leadership to meet timelines and coordinate development activities with a collaborative and team-focused attitude.

Occupation:	<u>Electrical engineer</u>	EQF Level:	6	ULOS (Units of Learning Outcomes)		
Tasks and responsibilities:		Level of competence:	Knowledge	Skills	Attitude	
(a) The electrical engineer advises on and designs power stations and systems which generate, transmit, and distribute electrical power.		4,5	The electrical engineer can advise ⁴ on power stations and systems which generate, transmit and distribute electrical power.	The electrical engineer can design ⁵ power stations and systems which generate, transmit and distribute electrical power		
(b) The electrical engineer supervises, controls, and monitors the operation of electrical generation, transmission, and distribution systems.		2, 3	The electrical engineer can monitor ² the operation of electrical generation, transmission and distribution systems	The electrical engineer can supervise ³ and manage ³ the operation of electrical generation, transmission and distribution systems.		
(c) The electrical engineer advises on and designs systems for electrical motors, electrical traction, and other equipment, or electrical domestic appliances.		4,5	The electrical engineer can advise ⁴ on systems for electrical motors, electrical traction and other equipment, or electrical domestic appliances.	The electrical engineer can design ⁵ systems for electrical motors, electrical traction and other equipment, or electrical domestic appliances		
(d) The electrical engineer specifies electrical installation and application in industrial and other buildings and objects.		3	The electrical engineer can specify ³ electrical installation and application in 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, motors, and equipment.		4	The electrical engineer can establish ⁴ control standards and procedures to monitor performance and safety of electrical generating and distribution systems, motors and equipment			
(f) The electrical engineer determines manufacturing methods for electrical systems, as well as maintenance and repair of existing electrical systems, motors, and equipment.		4	The electrical engineer can establish ⁴ manufacturing methods for electrical systems, as well as maintenance and repair of existing electrical systems, motors and equipment			
g) The electrical engineer designs basic electrical calculations (X, V, A) for luminaires, constructs electrical components, and conducts laboratory electrical measurements (V, A, THD, Harmonics, etc.)		5	The electrical engineer designs basic electrical calculations (X, V, A) and constructs electrical components in the context of laboratory electrical measurements (V, A, THD, Harmonics, etc.).	The electrical engineer constructs electrical components and creates electrical measurements under laboratory conditions for luminaires.	The electrical engineer verifies electrical calculations and measurements to support luminaires' performance analysis.	
h) The electrical engineer designs and integrates luminaire communication systems, selects suitable communication types, and implements central management systems and sensors.		5	The electrical engineer designs luminaire communication systems and implements central management systems and sensors in the context of selecting suitable communication types.	The electrical engineer creates integrated luminaire communication systems using central management systems and sensors.	The electrical engineer proposes suitable communication types for integrating luminaire communication systems.	

i) The electrical engineer measures photometric values with goniophotometers and tests blue light hazards.	2	The electrical engineer applies photometric values and blue light hazard concepts in the context of using goniophotometers	The electrical engineer measures photometric values using goniophotometers under testing conditions for blue light hazards.	The electrical engineer selects photometric values and blue light hazard tests when working with goniophotometers.
j) The electrical engineer designs PCBs for lighting control systems using CAD software such as Altium.	5	The electrical engineer designs PCBs for lighting control systems in the context of using CAD software such as Altium.	The electrical engineer creates PCB layouts for lighting control systems using Altium under design specifications.	The electrical engineer revises PCB designs to meet lighting control system requirements.
k) The electrical engineer interprets optics physics for lens calculations and lighting performance optimization.	1	The electrical engineer interprets optics physics for lens calculations and lighting performance optimization.	The electrical engineer distinguishes lens calculations in the context of lighting performance optimization using optics physics.	The electrical engineer follows optics physics when performing lens calculations and optimizing lighting performance.
l) The electrical engineer documents mechanical design of luminaires using 3D modeling tools like SolidWorks, Creo, or SolidEdge.	1	The electrical engineer documents the mechanical design of luminaires using 3D modeling tools like SolidWorks, Creo, or SolidEdge.	The electrical engineer selects 3D modeling tools for documenting the mechanical design of luminaires.	The electrical engineer follows mechanical design procedures when using 3D modeling tools to document luminaires.
m) The electrical engineer constructs digital twins for electrical and mechanical processes and employs simulation tools.	2	The electrical engineer constructs digital twins for electrical and mechanical processes using simulation tools.	The electrical engineer employs simulation tools to construct digital twins for electrical and mechanical processes.	The electrical engineer obtains digital twins to model electrical and mechanical processes with simulation tools.
n) The electrical engineer selects and applies production technologies such as die-casting, machining, and extrusion for luminaire manufacturing.	2	The electrical engineer applies production technologies such as die-casting, machining, and extrusion for luminaire manufacturing.	The electrical engineer executes luminaire manufacturing using production technologies such as die-casting, machining, and extrusion.	The electrical engineer selects production technologies such as die-casting, machining, and extrusion for luminaire manufacturing.
o) The electrical engineer oversees prototyping processes before initiating mass production.	4	The electrical engineer oversees prototyping processes in the context of preparation for mass production.	The electrical engineer assesses prototyping processes before initiating mass production to ensure production readiness.	The electrical engineer organises prototyping processes in collaboration with mass production.
p) The electrical engineer prepares technical documentation such as BOMs, assembly manuals, and part order specifications.	3	The electrical engineer identifies technical documentation such as BOMs, assembly manuals, and part order specifications in the context of engineering processes.	The electrical engineer organises technical documentation such as BOMs, assembly manuals, and part order specifications under production planning conditions.	The electrical engineer prepares technical documentation such as BOMs, assembly manuals, and part order specifications when supporting engineering workflows.
q) The electrical engineer enforces compliance with lighting standards and supervises certification processes.	3	The electrical engineer distinguishes lighting standards in the context of certification processes for compliance.	The electrical engineer enforces compliance with lighting standards under certification procedures.	The electrical engineer guides certification processes and compliance actions when applying lighting standards.
r) The electrical engineer conducts market analysis and researches competitors in the public lighting industry.	3	The electrical engineer researches competitors in the public lighting industry for the purpose of conducting market analysis.	The electrical engineer conducts market analysis under public lighting industry review conditions.	The electrical engineer demonstrates interest in public lighting market analysis and competitor
s) The electrical engineer executes lighting calculations using tools like DIALux, Relux, and AGI32, applies theories for various lighting projects.	2	The electrical engineer applies lighting calculation theories for various lighting projects using tools like DIALux, Relux, and AGI32.	The electrical engineer executes lighting calculations for various lighting projects using DIALux, Relux, and AGI32.	The electrical engineer presents lighting calculation outcomes using DIALux, Relux, and AGI32 for lighting projects.
t) The electrical engineer integrates AI-powered research tools to innovate in lighting technology.	4	The electrical engineer elaborates use cases of AI-powered research tools in the context of lighting technology innovation.	The electrical engineer adapts AI-powered research tools to support innovation in lighting technology.	The electrical engineer integrates AI-powered research tools when innovating in lighting technology.
u) The electrical engineer conceptualises deconstructional thinking to solve problems in public lighting projects.	5	The electrical engineer conceptualises deconstructional thinking in the context of solving problems in public lighting projects.	The electrical engineer initiates problem-solving strategies using deconstructional thinking in public lighting contexts.	The electrical engineer solves problems in public lighting projects through deconstructional thinking approaches.

v) The electrical engineer programs repetitive engineering tasks using AI-based tools.	3	The electrical engineer programs repetitive engineering tasks in the context of using AI-based tools.	The electrical engineer constructs solutions for repetitive engineering tasks using AI-based tools under optimisation conditions.	The electrical engineer initiates programming of repetitive engineering tasks using AI-based tools.
w) The electrical engineer administers and organises public lighting projects using tools like Gantt charts, ASANA, and ClickUp.	2	The electrical engineer administers public lighting projects using Gantt charts, ASANA, and ClickUp.	The electrical engineer organises tasks using tools like Gantt charts, ASANA, and ClickUp for public lighting projects.	The electrical engineer reports project progress using tools like Gantt charts, ASANA, and ClickUp for public lighting.

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