BEM Micro-credential

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| **BEM content (for all partners)** | Title/name of the credential | **Photovoltaic panel installer** | | |
| Function of the  micro-credentials / purpose | The purpose of the microcredit program is to train participants to independently  perform tasks related to the installation, maintenance and dismantling of photovoltaic panels. | | |
| Possible target groups | unemployed, people who want to retrain. | | |
| Branch/sector of application | Production of electricity | | |
| Fields of application / work environment | residential, business, industrial, public space, sports facilities | | |
| Typical work/professional tasks | * Installation, maintenance and dismantling of photovoltaic systems according to technical documentation. * Assembly and disassembly of the photovoltaic panel support structure, * Selection of equipment (cables, connectors, charging regulators, solar accumulators/batteries, inertors, DC/AC protection) | | |
| Learning outcomes (personal and job related) | *Knowledge*   * defines the term photovoltaic panel * knows the electrical characteristics of the photovoltaic panel; * specifies the division of photovoltaic systems according to the method of supplying consumers; * explain the influence of shading on the output power of the inverter and the production of electricity; * states the effects of panel aging; * defines the concept of string and central inverter; * lists different types of supporting structures; * defines the switching and protective equipment of photovoltaic systems; * lists the characteristics of AC and DC cables in photovoltaic installations * explains the basic procedures of mechanical assembly of elements and photovoltaic systems; * explains the procedures for the electrical connection of elements of the photovoltaic panel system | *Skills*   * installs and mounts the photovoltaic panel (depending on the material of the building's roof); * selects the place of installation of the photovoltaic panel (the relationship between the building and the outside world);   + connects the photovoltaic panel to the inverter   + carries out winding of various types of supporting structures for the installation of photovoltaic panels;   + connects the switching and protective equipment of photovoltaic systems;   + connects AC and DC cables in photovoltaic systems;   + assembles and dismantles the structure for carrying the panels   + makes electrical connections of elements and   equipment of | Competences   * lifelong learning working with data and information; * Implementation of safety and health protection measures at work and environmental protection * Preparation and installation and maintenance of photovoltaic systems * Business communication in work with clients, colleagues and superiors * aesthetic competence; * entrepreneurship and entrepreneurial competence; |

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|  |  |  | photovoltaic systems that are connected to the distribution network (On-grid) and systems that are not connected to the distribution network (off-grid);   * performs battery maintenance (off-grid); * reports malfunctions in a timely manner and performs   maintenance of  photovoltaic solar systems | |  |
| Validation | *Criteria*   * suitability - reliability; (compliance of the assessment with established, public and precise assessment criteria); * validity; (evaluation shows the effects of learning - achievement of results, engagement and progress of participants; * diversity of assessment methods: (choice of appropriate and application of different assessment methods and techniques in order to ensure validity, reliability and objectivity of assessment); * evaluation without discrimination and selection on any basis; | | *Procedures*   * formation of the examination committee; * determining the list of tasks for the exam; * extracting work tasks; * checking competence by creating tasks; * examination records; * awarding of certificates; | |
| Recognised/accepted (documented by MoU) | Company name: "Envidome" doo Niš | | | |
| Provider(s) | Vocational secondary schools - Publicly recognized organizers of educational activities (JPOA) | | | |
| **Additional information (if needed)** | Entry level / prerequisites | NOKS level 1 - primary educatin and upbringing, primary adult education, primary ballet education and upbringing and primary music education and upbringing  125 hours | | | |
| Possible duration (recommendation) |
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| **Specific content (national) (if needed)** | Position in the chain of educational programmes | Non-formal training  3rd level of NOKS; 3rd level EOK 5 | | | |
| Reference to NQF |
| Credits |