**COMPETENCY BASED STANDARD**

**ELECTRICAL TRADE SECTOR**



**BUILDING ELECTRICIAN**

**Job Title**

**ISCO 7411**

**CERTIFICATE LEVEL 1 | DRAFT VERSION 1 | JANUARY 2018**

**Second Strengthening Technical and Vocational Education and Training (STVET) Project**

**ADB Grant 0503-LAO**

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**LAO PDR**

##### Occupation Area: Electrical Equipment Installers and Repairers

##### ISCO 741

**Job Title: Building and Related Electricians**

**ISCO 7411**

**Competency Standard: Building Electrician**

**ISCO 7411.2**

**nlvqf: 1**

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# Foreword

In order to ensure that the LAO PDR grows competitively over the coming years, we need to establish an ethos of excellence in everything that we do. This includes, particularly the Education & Employment sectors, as symbolized by Technical Vocational Education & Training (TVET).

Research has shown that countries without a functioning and effective TVET system will lose out in the competitiveness ratings, with a consequence negative impact on growth etc.

## Project Title

Second Strengthening Technical Vocational Education & Training (SSTVET) in LAO PDR

## Project Donor & Number

ADB Grant No. 0503-LAO (SF)

# Purpose of this competency standard

The Purpose of the Competency Standard for the BUILDING ELECTRICIAN **Level I** is to provide a framework for Competency Based Training (CBT) Programmes resulting in Competent ELECTRICIANS to support the Electrical service and repair industry/sector in Lao PDR.

The BUILDING ELECTRICIAN **Level I** is defined in reference to the Prime Minister Decree Number 0036/PM published in 2011, the Ministry of Education and Sport Decree Number 4697/MoES11 published 9 December 2011, the Manual for Developing Competency Standards published December 2011 and the ASEAN Regional Qualification Framework in TVET.

# Competency Standard/ Qualification/ Job Description

This Competency, Standards/ Qualification of BUILDING ELECTRICIAN I provide a structured occupational outcome for domestic & commercial ELECTRICIANS.

## Job description

This qualification covers the skills and knowledge in Basic, Common & Core Competencies required by the Electrical Trade industry/sector for BUILDING ELECTRICIANS to Install, repair and maintain the electrical systems and components of residential, commercial and industrial buildings. It is suitable for entry into the Electrical Trade industry/sector at **NVQF Level I** in Lao PDR.

Person deemed competent in this qualification:

* has theoretical knowledge in Electrical Installation
* has a range of well-developed skills on Electrical Installation to install, repair and maintain
* work on jobs requiring minimal tolerance
* be responsible for the entrusted equipment
* solve routine work problems using basic methods, tools materials and information

**Job roles/employment outcomes**

The Certificate **Level I** in BUILDING ELECTRICIAN is intended to prepare new employees or recognize and develop existing workers who are performing electrical installation and repair tasks in the Electrical industry/sector.

Employment outcomes targeted by this qualification is BUILDING ELECTRICIAN

**Application**

The qualification is in line with CBT principles and is suitable for a Lao PDR Apprenticeship pathway

Where common/core units of competency are packaged to suit a particular industry sector or occupational outcome, Registered Training Organizations (RTOs) might issue, for example, a:

Certificate I in Building Electrician (specializing Electrical Installation)

It should be noted that a qualification with a specialization does not change the title of the qualification

**CAREER PATH INFORMATION**

Career path into the qualification

This qualification may be accessed by direct entry. from Secondary Schools (level 9 or 12) or anybody with partial Secondary Education that meets the entry requirements.

Career path from the qualification

Further training pathways from this qualification include Certificate II within the Electrical Trade training package qualifications.

# Outline of this Competency Standard

This Competency Standard contains ***Units of Competency*** as detailed within. These **Units** form the basis for CBT Learning Programmes for Electrical Installation. Each **Unit** contains the required **Elements of Competency**. Each **Unit** being able to stand alone when applied in a work situation.

Each **Unit** can be amended in content or structure to meet the evolving needs of the ELECTRICIANS. Changes and amendments to this Competency Standard will be made in line with the existing Quality Assurance Procedures as approved by the appropriate authority.

This Competency Standard is structured in line with the approved Manual for Developing Competency Standards, developed as a part of the STVET programme. For Quality Assurance purposes, each Unit is coded in line with the example below:

**Code Example**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Occupation | Job | Sub Sector | Level | Unit Type | Unit No. | Version No |
| Electrical Equipment Installers and Repairers | Building and Related Electricians | Electrician, Building | NLVQF | Core | Series No |  |
| 741 | 7411 | 2 | 1 | 1 | 001 | 01 |

Code example above displayed as:

741.7411.211.001.01

**ISCO Minor Group –**

741 – Electrical Equipment Installers and Repairers

742 – Electronics and Telecom

**ISCO Unit Groups**

7411- Building and Related Electrician

7412 – Electrical Mechanics and Fitters

7413 – Electrical Line Installers and Repairers

**Lao standard code occupation under 7411 - Electrical Sub-Sectors**

1 - General Electrician

2 - Building Electrician

3 - Ship Electrician

4 - Stage Studio Electrician

5 - Electrician Maintenance and Support

NLVQF Skills Level Number

1 - Semi Skilled Worker

2. – Skilled Worker

3. - Advance Skilled Worker

4 - Supervisor level

Each Competency Standard for a Job contains a mix of Units structured as follows:

**Unit Type 1 Basic Units** – Cover a range of Occupations

**Unit Type 2 Common Units** – Common to jobs in the Electrical industry/sector

**Unit Type 3 Core Units** – Technical & Specific to this job

# BASIC UNITS OF COMPETENCY

###### RESPOND TO WORKPLACE COMMUNICATION

|  |  |
| --- | --- |
| **UNIT CODE:** | 741.7411.211.001.01 |
| **UNIT DESCRIPTOR:**  This unit covers the knowledge, skills and attitudes required in responding to workplace communication. This unit specifically involves following routine spoken messages and performing workplace duties following written notices. | |

Elements & Performance Criteria

|  |  |
| --- | --- |
| **ELEMENTS** | **PERFORMANCE CRITERIA**  *(Italicized items are elaborated in the range of variables).* |
| 1. Follow routine spoken messages. | * 1. Required information is gathered by listening attentively and correctly interpreting or understanding information/instructions   2. Instructions/information are properly recorded   3. Instructions are acted upon immediately in accordance with information received   4. Clarification is sought from workplace supervisor on all occasions when any instruction/information is not clear |
| 1. Perform workplace duties following written notices. | * 1. ***Written notices and instructions*** are read and interpreted correctly in accordance with ***organizational guidelines.***   2. Routine written instruction is followed in sequence   3. Feedback is given to workplace supervisor based on the instructions/information received |

**Range of Variables**

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| 1. Written notices and instructions | It may refer to:   * 1. Handwritten and printed material   2. Internal memos   3. External communications   4. Electronic mail   5. Briefing notes   6. General correspondence   7. Marketing materials   8. Journal articles |
| 1. Organizational Guidelines | It may include:   * 1. Information documentation procedures   2. Company policies and procedures   3. Organization manuals   4. Service manual |

Evidence Guide

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   * 1. Demonstrated knowledge of organizational procedures for handling verbal and written communications   2. Received and acted on verbal messages and instructions   3. Demonstrated competency in recording instructions/information |
| 1. Underpinning knowledge and attitudes | * 1. Knowledge of organizational policies/guidelines in regard to processing internal/external information   2. Ethical work practices in handling communications   3. Communication process |
| 1. Underpinning skills | * 1. Conciseness in receiving and clarifying messages/information/communication   2. Accuracy in recording messages/information |
| 1. Resource implications | The following resources should be provided:   * 1. Pens   2. Note pads |
| 1. Method of assessment | Competency in this Unit should be assessed through:   * 1. Direct Observation   2. Oral interview   3. Written Evaluation   4. Third Party Report |
| 1. Context for assessment | * 1. Competency may be assessed on the job or simulated environment.   2. Assessment shall be observed while tasks are being undertaken whether individually or in group   3. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines. |

###### WORK WITH OTHERS

|  |  |  |
| --- | --- | --- |
| **UNIT CODE:** | 741.7411.211.002.01 | |
| **UNIT DESCRIPTOR:**  This competency unit includes the knowledge, skills and attitudes required in working with others. This unit specifically involves developing effective workplace relationship and contributing to work group activities. | |

Elements & Performance Criteria

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| --- | --- |
| **ELEMENTS** | **PERFORMANCE CRITERIA**  *(Italicized items are elaborated in the range of variables).*. |
| 1. Develop effective workplace relationship | * 1. ***Duties and responsibilities*** are done in a positive manner to promote cooperation and good relationship   2. Assistance is sought from ***workgroup*** when difficulties arise and addressed through discussions   3. ***Feedback*** provided by others in the team is encouraged, acknowledged and acted upon   4. Differences in personal values and beliefs are respected and acknowledged in the development |
| 1. Contribute to work group activities | * 1. ***Support is provided to team members*** to ensure workgroup goals are met   2. Constructive contributions to workgroup goals and tasks are made according to ***organizational requirements***   3. Information relevant to work is shared with team members to ensure designated goals are met |

**Range of Variables**

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| 1. Duties and responsibilities | It may refer to:   * 1. Job description and employment arrangements   2. Organization’s policy relevant to work role   3. Organizational structures   4. Supervision and accountability requirements including OHS   5. Code of conduct |
| 1. Work group | t may refer to:   * 1. Supervisor or manager   2. Peers/work colleagues   3. Other members of the organization |
| 1. Feedback | May include but not limited to:   * 1. Formal/Informal performance appraisal   2. Obtaining feedback from supervisors and colleagues and clients   3. Personal, reflective behavior strategies   4. Routine organizational methods for monitoring service delivery |
| 1. Support is provided to team members | May include but not limited to:   * 1. Explaining/clarifying   2. Helping colleagues   3. Providing encouragement   4. Providing feedback to another team member   5. Undertaking extra tasks if necessary |
| 1. Organizational requirements | May include but not limited to:   * 1. Goals, objectives, plans, system and processes   2. Legal and organization policy/guidelines   3. OHS policies, procedures and programs   4. Ethical standards   5. Defined resources parameters   6. Quality and continuous improvement processes and standards |

**Evidence Guide**

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| --- | --- |
| Critical aspects of Competency | Assessment requires evidence that the candidate:   * 1. Provided support to team members to ensure goals are met   2. Acted on feedback from clients and colleagues   3. Accessed learning opportunities to extend own personal work competencies to enhance team goals and outcomes |
| Underpinning knowledge and attitudes | The relevant legislation that affects operations, especially with regards to safety  Reasons why cooperation and good relationships are important  Knowledge of the organization’s policies, plans and procedures  Understanding how to elicit and interpret feedback  Knowledge of workgroup member’s responsibilities and duties  Importance of demonstrating respect and empathy in dealings with colleagues  Understanding of how to identify and prioritize personal development opportunities and options |
| Underpinning *skills* | Ability to read and understand the organization’s policies and work procedures  Writing simple instructions for particular routine tasks  Interpreting information gained from correspondence  Communication skills to request advice, receive feedback and work with a team  Planning skills to organized work priorities and arrangement  Technology skills including the ability to select and use technology appropriate to a task  Ability to relate to people from a range of social, cultural and ethnic backgrounds |
| Resource implications | The following resources should be provided:  Access to relevant workplace or appropriately simulated environment where assessment can take place  Materials relevant to the proposed activity or task |
| Method of assessment | Competency in this Unit should be assessed through:  Direct observations of work activities of the individual member in relation to the work activities of the group  Observation of simulation and/or role play involving the participation of individual member to the attainment of organizational goal  Case studies and scenarios as a basis for discussion of issues and strategies |
| Context for assessment | Competency may be assessed on the job or simulated environment.  Assessment shall be observed while task are being undertaken whether individually or in group  Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

###### DEMONSTRATE POSITIVE WORK VALUES

|  |  |
| --- | --- |
| **UNIT CODE:** | 741.7411.211.003.01 |
| **UNIT DESCRIPTOR:**  This competency unit includes the knowledge, skills, and attitude required in demonstrating positive work values. This unit specifically involves defining the purpose of work, applying work values/ethics, dealing with ethical problems and maintaining integrity of conduct in the workplace. | |

Elements & Performance Criteria

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| --- | --- | --- |
| **ELEMENTS** | | **PERFORMANCE CRITERIA**  *(Italicized items are elaborated in the range of variables).* |
| Define the purpose of work | * 1. One’s unique sense of purpose for working and the why’s of work are identified, reflected on and clearly defined for one’s development as a person and as a member of society.   2. Personal mission is in harmony with company’s values | |
| Apply work values/ethics | * 1. ***Work values/ethics/concepts*** are classified and reaffirmed in accordance with the transparent company ethical standards, policies and guidelines.   2. ***Work practices*** are undertaken in compliance with industry work ethical standards, organizational policy and guidelines   3. Personal behavior and relationships with co-workers and/or clients are conducted in accordance with ethical standards, policy and guidelines.   4. ***Company resources*** are used in accordance with transparent company ethical standard, policies and guidelines. | |
| Deal with ethical problems | * 1. Company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct are accessed and applied in accordance with transparent company ethical standard, policies and guidelines.   2. ***Work incidents/situations*** are reported and/or resolved in accordance with company protocol/guidelines.   3. Resolution and/or referral of ethical problems identified are used as learning opportunities. | |
| Maintain integrity of conduct in the workplace | * 1. Personal work practices and values are demonstrated consistently with acceptable ethical conduct and company’s core values.   2. ***Instructions*** to co-workers are provided based on ethical, lawful and reasonable directives.   3. Company values/practices are shared with co-workers using appropriate behavior and language. | |

Range of Variables

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| 1. Work values/ethics/ concepts | May include but are not limited to:   * 1. Commitment/ Dedication   2. Sense of urgency   3. Sense of purpose   4. Love for work   5. High motivation   6. Orderliness   7. Reliability   8. Competence   9. Dependability   10. Goal-oriented   11. Sense of responsibility   12. Being knowledgeable   13. Loyalty to work/company   14. Sensitivity to others   15. Compassion/Caring attitude   16. Balancing between family and work   17. Sense of nationalism |
| 1. Work practices | May include but not limited to:   * 1. Quality of work   2. Punctuality   3. Efficiency   4. Effectiveness   5. Productivity   6. Resourcefulness   7. Innovativeness/Creativity   8. Cost consciousness   9. 5S   10. Attention to details |
| 1. Company resources | May include:   * 1. Consumable materials   2. Equipment/Machineries   3. Human   4. Time   5. Financial resources |
| 1. Incidents/situations | May include:   * 1. Violent/intense dispute or argument   2. Gambling   3. Use of prohibited substances   4. Pilferages   5. Damage to person or property   6. Vandalism   7. Falsification   8. Bribery   9. Sexual Harassment   10. Blackmail |
| 1. Instructions | Includes:   * 1. Verbal   2. Written |

Evidence Guide

|  |  |
| --- | --- |
| 1. Critical aspects of   competency | Assessment requires evidence that the candidate:   * 1. Identified one’s unique sense of purpose for working   2. Clarified and affirmed work values/ethics/concepts consistently in the workplace   3. Demonstrated work practices satisfactorily and consistently in compliance with industry work ethical standards, organizational policy and guidelines   4. Demonstrated personal behaviour and relationships with co-workers and/or clients consistent with ethical standards, policy and guidelines.   5. Followed company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct/behaviour |
| 1. Underpinning Knowledge and attitude | * 1. Occupational health and safety   2. Work values and ethics   3. Company performance and ethical standards   4. Company policies and guidelines   5. Fundamental rights at work including gender sensitivity   6. Work responsibilities/job functions   7. Corporate social responsibilities   8. Company code of conduct/values   9. Balancing work and family responsibilities |
| 1. Underpinning skills | * 1. Showing interpersonal skills   2. Applying communication skills   3. Performing self-awareness, understanding and acceptance   4. Applying good manners and right conduct |
| 1. Resource implications | The following resources should be provided:   * 1. Workplace or assessment location   2. Case studies/Scenarios |
| 1. Method of assessment | Competency in this Unit should be assessed through:   * 1. Portfolio Assessment   2. Interview   3. Third Party Reports |
| 1. Context for assessment | * 1. Competency may be assessed on the job or simulated environment.   2. Assessment shall be observed while task are being undertaken whether individually or in group   3. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

###### PRACTICE HOUSEKEEPING PROCEDURES

|  |  |
| --- | --- |
| **UNIT CODE:** | 741.7411.211.004.01 |
| **UNIT DESCRIPTOR:**  This competency unit includes the knowledge, skills, and attitude required in practicing housekeeping procedures. This unit specifically involves sorting and removing unnecessary items, arranging items, maintaining work area, tools and equipment, following standardized work process and procedures and performing work spontaneously | |

Elements & Performance Criteria

|  |  |  |
| --- | --- | --- |
| **ELEMENTS** | | **PERFORMANCE CRITERIA**  *(Italicized items are elaborated in the range of variables).* |
| 1. Sort and remove unnecessary items | * 1. Reusable, recyclable materials are sorted in accordance with company/office procedures   2. ***Unnecessary items*** are removed and disposed of in accordance with company or office procedures | |
| 2. Arrange items | * 1. Items are arranged in accordance with company/office housekeeping procedures   2. Work area is arranged according to job requirements   3. Activities are prioritized based on instructions.   4. Items are provided with clear and visible ***identification*** ***marks*** based on procedure   5. Safety equipment and evacuation passages are kept clear and accessible based on instructions | |
| 3. Maintain work area, tools and equipment | * 1. Cleanliness and orderliness of work area is maintained in accordance with company/office procedures   2. Tools and equipment are cleaned in accordance with manufacturer’s instructions/manual   3. ***Minor repairs*** are performed on tools and equipment in accordance with manufacturer’s instruction/manual   4. Defective tools and equipment are reported to immediate supervisor | |
| 4. Follow standardized work process and procedures | * 1. Materials for common use are maintained in designated area based on procedures   2. Work is performed according to standard work procedures   3. Abnormal incidents are reported to immediate supervisor | |
| 5. Perform work spontaneously | * 1. Work is performed as per instruction   2. Company and office ***decorum*** are followed and complied with   3. Work is performed in accordance with occupational health and safety (OHS) requirements | |

Range of Variables

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| 1. Unnecessary items | May include but are not limited to:   * 1. Non-recyclable materials   2. Unserviceable tools and equipment   3. Pictures, posters and other materials not related to work activity   4. Waste materials |
| 1. Identification marks | Includes:   * 1. Labels   2. Tags   3. Color coding |
| 1. Minor repair | May include but not limited to:   * 1. Replacement of parts   2. Application of lubricants   3. Sharpening of tools   4. Tightening of nuts, bolts and screws |
| 1. Decorum | * 1. Company/ office rules and regulations   2. Company/ office uniform   3. Behavior |

Evidence Guide

|  |  |
| --- | --- |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate:   * 1. Practiced the basic procedures of 5S |
| 1. Underpinning Knowledge and attitude | * 1. Principles of 5S   2. Work process and procedures   3. Safety signs and symbols   4. General OH&S principles and legislation   5. Environmental requirements relative to work safety   6. Accident/Hazard reporting procedures |
| 1. Underpinning skills | * 1. Performing basic communication skills   2. Carrying-out Interpersonal skills   3. Reading skills required to interpret instructions   4. Reporting/recording accidents and potential hazards |
| 1. Resource implications | The following resources must be provided:   * 1. Facilities   2. Materials tools and equipment necessary for the activity |
| 1. Methods of assessment | Competency must be assessed through:   * 1. Third party report   2. Interview   3. Demonstration with questioning |
| 1. Context for assessment | * 1. Competency may be assessed on the job or simulated environment.   2. Assessment shall be observed while tasks are being undertaken whether individually or in group   3. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

# COMMON UNITS OF COMPETENCY

###### Prepare construction materials & tools

|  |  |
| --- | --- |
| **Unit Code** | 741.7411.212.001.01 |
| **Unit Descriptor** | *This unit of Common Competency covers the knowledge, skills and attitudes for identifying, requesting and receiving construction materials and tools.* |

Elements & Performance Criteria

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| --- | --- |
| **ELEMENTS** | PERFORMANCE CRITERIA  ***Italicized*** terms are elaborated in the  Range of Variables |
| 1. Identify materials | * 1. ***Materials*** are listed as per job requirements   2. ***Quantity and description of materials*** conform with the job requirements   3. ***Tools and accessories are identified*** according to job requirements |
| 1. Requisition materials | * 1. Materials and tools needed are requested according to the list prepared   2. Request is done as per company standard operating procedures (SOP)   3. Substitute materials and tools are provided without sacrificing cost and quality of work |

Range of Variables

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| 1. Materials and Tools | * 1. Electrical supplies   2. Structural   3. Plumbing   4. Welding/pipefitting   5. Carpentry   6. Masonry |
| 1. Description of Materials and Tools | * 1. Brand name   2. Size   3. Capacity   4. Kind of application |
| 1. Company standard procedures | * 1. Job order   2. Requisition slip   3. Borrower slip |

Evidence Guide

|  |  |
| --- | --- |
| **ASPECTS OF COMPETENCY** | **EVIDENCE REQUIREMENTS** |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate:   * 1. Listed materials and tools according to quantity and job requirements   2. Requested materials and tools according to the list prepared and as per company SOP   3. Inspected issued materials and tools as per quantity and job specifications   4. Tools provided with appropriate safety devices |
| 1. Underpinning knowledge | * 1. Types and uses of construction materials and tools   2. Different forms   3. Requisition procedures   4. Concrete materials preparation & mixes   5. Plaster materials preparation & mixes   6. Equipment types & functions   7. Brick & block types, functions & usage |
| 1. Underpinning skills | * 1. Preparing materials and tools   2. Proper handling of tools and equipment   3. Following instructions   4. Concrete materials & mixing   5. Plaster materials & mixing   6. Brick & block handling   7. Tools & equipment handling |
| 1. Resource implications | The following resources should be provided:   * 1. Workplace location   2. Materials relevant to the unit of competency   3. Technical plans, drawings and specifications relevant to the activities |
| 1. Methods of assessment | Competency in this unit can be assessed through:   * 1. Direct observation   2. Questioning   *Evidence provided for competency determination will be Valid, Sufficient & Current* |
| 1. Context of assessment | * 1. Competency may be assessed in the work place or in an accredited centre.   2. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

###### OBSERVE POCEDURES, SPECIFICATIOS & MANUALS OF INSTRUCTION

|  |  |
| --- | --- |
| Unit Code | 741.7411.212.002.01 |
| Unit Descriptor | This unit covers the Skills, Knowledge and Attitudes required in identifying, interpreting, applying services to specifications and manuals and storing manuals. |

Elements & Performance Criteria

|  |  |
| --- | --- |
| ELEMENTS | PERFORMANCE CRITERIA  Italicized terms as elaborated in the Rang of Variables |
| Identify and access manuals/ specifications | Appropriate manuals are identified and accessed as per job requirements  Version and date of manual are checked to ensure that correct specification and procedures are identified |
| Interpret manuals/ specifications | Relevant sections, chapters of specifications/ manuals are located in relation to the work to be conducted  Information and procedure in the manual are interpreted in accordance with industry practices |
| Apply information in manuals/ specifications | Work steps are correctly identified in accordance with manufacturer's specification and Job requirements  Manual data are applied according to the given task  All correct sequencing and adjustments are interpreted in accordance to the manual or specifications |
| Store manuals | Manual or specification is stored appropriately to prevent damage, ready access and updating of information when required in accordance with company requirements |

Range of Variables

|  |  |
| --- | --- |
| VARIABLES | RANGE |
| Manuals and Information | 1. Regulatory legislative requirements pertaining to the Electrical industry including Lao Design Rules 2. Repair manual/handbook issued by company/manufacturer/component supplier 3. Specification data/manual/handbook issued by company/manufacturer/component supplier 4. Periodic Service Maintenance Data manual/handbook issued by company/manufacturer/component supplier 5. Tools, workshop-, test equipment and OHS user manual and service guide issued by company/manufacturer/component supplier |
| Applications | Manuals used for System/components may be fitted to:  Light vehicles  Agro-Machinery  Outdoor power equipment  Marine craft  Plant |
| Company/ workshop standard operating procedures | Manuals and Information used for Company/workshop standard operating procedures include:  Written instructions issued by authorized personal  Job order slip  Spare parts ordering form |

Evidence Guide

|  |  |
| --- | --- |
| Critical aspects of Competency | Assessment requires evidence that the candidate:  Listed materials and tools according to quantity and job requirements  Requested materials and tools according to the list prepared and as per company standard operating procedures  Inspected issued materials and tools as per quantity and job specifications  Tools provided with appropriate safety devices |
| Underpinning knowledge and attitudes | Types and uses of construction materials and tools  Different forms  Requisition procedures |
| Underpinning skills | Preparing materials and tools  Proper handling of tools and equipment  Following instructions |
| Resource implications | The following resources should be provided:  Workplace location  Materials relevant to the unit of competency  Technical data/manual/handbook and specifications relevant to the activities |
| Method of assessment | Competency in this Unit may be assessed through:  Direct observation and oral questioning  Evidence provided for competency determination will be Valid, Sufficient & Current |
| Context for assessment | Competency may be assessed on the job or simulated environment.  Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

###### Unit 3 Interpret technical drawings & plans

|  |  |
| --- | --- |
| **Unit Code** | ***712.7137.032.03.01*** |
| **Unit Descriptor** | *This Unit covers the Skills Knowledge & Attitudes required when analysing and interpreting symbols, data in drawings and work plan.* |

Elements & Performance Criteria

|  |  |
| --- | --- |
| **ELEMENTS** | **PERFORMANCE CRITERIA**  ***Italicized*** terms are elaborated in the Range of Variables |
| Analyze signs, symbols and data | * 1. ***Technical plans*** are obtained according to job requirements   2. Signs, symbols and data are identified according to job specifications   3. Signs symbols and data are determined according to ***classification*** or as appropriate in ***drawing*** |
| Interpret technical drawings and plans | * 1. Necessary ***tools, materials*** and equipment are identified according to the ***plan***   2. Supplies and materials are listed according to specifications   3. Components, assemblies or objects are recognized as required   4. Dimensions are identified as appropriate to the plan   5. Specification details are matched with existing/available resources and in line with job requirements.   6. Work plan is drawn following the specifications |
| Apply freehand sketching | * 1. Where applicable, correct freehand sketching is produced in accordance with the job requirements |

Range of Variables

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| Technical Plans | Including but not limited to:  1.1 Electrical plans  1.2 Structural plans  1.3 Architectural plans  1.4 Plumbing plans  1.5 Welding Procedures Specifications (WPS) |
| Work plan | 2.1 Job requirements  2.2 Installation instructions  2.3 Components instruction |
| Classification | Including but not limited to:  3.1 Electrical  3.2 Mechanical  3.3 Plumbing |
| Drawing | 4.1. Welding Symbols  4.2. Drawing symbols.   1. Alphabet of lines    1. Orthographic views    2. Front view    3. Right side view/left side view    4. Top view    5. Pictorial    6. Schematic diagram    7. Electrical drawings    8. Structural drawings    9. Plumbing drawings    10. Water    11. Sewerage/Drainage    12. Ventilation |
| Tools & material | Including but not limited to;   * 1. Compass   2. Divider   3. Rulers   4. Triangles   5. Drawing tables   6. Computer |

Evidence Guide

|  |  |
| --- | --- |
| **ASPECTS OF COMPETENCY** | **EVIDENCE REQUIREMENTS** |
| Critical aspects of competency | * 1. Identified and determined signs, symbols and data according to work plan, job requirements & classifications   2. Identified tools and equipment & materials in accordance with job requirements.   3. Listed supplies and materials according to blueprint Specifications   4. Completed work plan following specifications.   5. Demonstrated ability to determine job specifications based on working / technical drawing |
| Underpinning knowledge | * 1. Mathematics * 2.1.1 Linear measurement * 2.1.2 Dimension * 2.1.3 Unit conversion   1. Reading Drawings & Plans      + Electrical, mechanical plan, symbols and abbreviations      + Drawing standard symbols   2. Trade Theory      + Basic technical drawing      + Types technical plans      + Various types of drawings * 2.3.4 Notes and specifications |
| Underpinning skills | 1. Interpreting drawing/orthographic drawings    1. Interpreting technical plans    2. Matching specification details with existing resources    3. Following instructions    4. Handling of drawing instruments |
| Resource implications | * 1. Workplace   2. Drawings and specification relevant to task   3. Materials and instrument relevant to proposed activity |
| Methods of assessment | * 1. Direct observation   2. Questioning   *Evidence provided for competency determination will be Valid, Sufficient & Current* |
| Context of assessment | * 1. Competency may be assessed in the work place or in an accredited centre.   2. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

###### USE MATHEMATICAL CONCEPTS & TECHNIQUES

|  |  |
| --- | --- |
| Unit Code | 741.7411.212.004.01 |
| Unit Descriptor | This Unit covers the Skills, Knowledge and Attitudes required in the application of mathematical concepts and techniques. |

Elements & Performance Criteria

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| --- | --- |
| ELEMENTS | PERFORMANCE CRITERIA  Italicized terms as elaborated in the Rang of Variables |
| Identify mathematical tools and techniques to solve problem | Problem areas are identified based on given condition  Mathematical techniques are selected based on the given problem |
| Apply mathematical procedure/solution | Mathematical techniques are applied based on the problem identified  Mathematical computations are performed to the level of accuracy required for the problem  Results of mathematical computation is determined and verified based on job requirements |
| Analyze results | Result of application is reviewed based on expected and required specifications and outcome  Appropriate action is applied in case of error |

Range of Variables

|  |  |
| --- | --- |
| VARIABLES | RANGE |
| Mathematical techniques | Should be included, but are not limited to:  Four fundamental operations  Measurements  Use/Conversion of units of measurements  Use of standard formulas |
| Appropriate action | Review in the use of mathematical techniques (e.g. recalculation, re-modeling)  Report error to immediate superior for proper action |

Evidence Guide

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| --- | --- |
| Critical aspects of Competency | Assessment requires evidence that the candidate:  Identified, applied and reviewed the use of mathematical concepts and techniques to workplace problems |
| Underpinning knowledge and attitudes | Fundamental operation (addition, subtraction, division, multiplication)  Measurement system  Precision and accuracy  Basic measuring tools/devices |
| Underpinning skills | Applying mathematical computations  Using calculator  Using different measuring tools |
| Resource implications | The following resources should be provided:  Workplace location or simulated work area  Calculator  Basic measuring tools  Case Problems |
| Method of assessment | Competency in this Unit should be assessed through:  Interview/ oral questioning  Demonstration on simulated situation  Written/Oral examination  Evidence provided for competency determination will be Valid, Sufficient & Current |
| Context for assessment | Competency should be assessed in the workplace or simulated environment.  Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

###### Maintain tools & equipment

|  |  |
| --- | --- |
| **Unit Code** | 741.7411.212.006.01 |
| **Unit Descriptor** | *This Unit covers the Skills Knowledge & Attitudes required when checking the condition of tool & equipment, performing preventive maintenance and storing of tools and equipment.* |

Elements & Performance Criteria

|  |  |
| --- | --- |
| **ELEMENTS** | **PERFORMANCE CRITERIA**  ***Italicized*** terms are elaborated in the  Range of Variables |
| Check condition of tools & equipment | * 1. Materials, tools and equipment are identified according to classification and job requirements   2. Non-functional tools and equipment are   segregated and labeled according to classification   * 1. Safety of tools and equipment are observed in accordance with manufacturer's instructions   2. Condition of PPE are checked in accordance   with manufacturer's instructions |
| Perform basic maintenance | * 1. Appropriate lubricants are identified according to   types of equipment   * 1. Tools and equipment are lubricated according to preventive maintenance schedule or manufacturer's specifications   2. Measuring instruments are checked and   calibrated in accordance with manufacturer’s  instructions   * 1. Tools are cleaned and lubricated according to standard operating procedures   2. Defective instruments, equipment and   accessories are inspected and replaced  according to manufacturer’s specifications   * 1. Tools are inspected, repaired and replaced after use   2. Work place is cleaned and kept in safe state in   line with SOP, QMS & OHS regulations |
| Store tools & equipment | * 1. Inventory of tools, instruments and equipment are conducted and recorded as per company practices   2. Tools and equipment are stored safely in appropriate locations in accordance with   manufacturer's specifications or SOP, OHS, QMS |

Range of Variables

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| Materials | Including but not limited to;-   * 1. Lubricants   2. Cleaning materials   3. Rust remover   4. Rugs   5. Spare parts |
| Tools & equipment | Including but not limited to;-   * 1. Cutting tools - hacksaw, crosscut saw, rip saw   2. Boring tools - auger, brace, grinlet, hand drill   3. Holding tools - vise grip, C-clamp, bench vise   4. Threading tools - die and stock, taps   5. Measuring instruments/equipmentn |
| PPE | Including but not limited to;-   * 1. Goggles   2. Gloves   3. Safety shoes   4. Aprons/Coveralls |
| Forms | * 1. Maintenance schedule forms   2. Requisition slip   3. Inventory form   4. Inspection form   5. Reporting form |

Evidence Guide

|  |  |
| --- | --- |
| **ASPECTS OF COMPETENCY** | **EVIDENCE REQUIREMENTS** |
| 1. Critical Aspects of Competency | Assessment requires that the candidates has;-   * 1. Selected and used appropriate processes, tools and equipment to carry out task   2. Identified functional and non-functional tools and equipment   3. Checked, lubricated and calibrated tools, equipment and instruments according to manufacturer’s specifications   4. Replaced defective tools, equipment and their accessories   5. Observed and applied safe handling of tools and equipment and safety work practices   6. Prepared and submitted inventory report, where applicable   7. Maintained workplace in accordance with OHSA regulations   8. Stored tools and equipment safely in appropriate locations and in accordance with company practices |
| 1. Underpinning Knowledge | ***Safety Practices***   * 1. Use of PPE   2. Handling of tools and equipment   3. Good housekeeping   ***Materials Tools & equipment***   * 1. Types and uses of lubricants   2. Types and uses of cleaning materials   3. Types and uses of measuring instruments and equipment.   ***Preventative maintenance***   * 1. Methods and techniques   2. Procedures |
| 1. Underpinning skills | * 1. Preparing maintenance materials, tools and equipment   2. Proper handling of tools and equipment   3. Performing preventive maintenance   4. Following instructions |
| 1. Resource implications | The following resources should be provided:   * 1. Workplace   2. Maintenance schedule   3. Maintenance materials, tools and equipment relevant to the proposed activity/task |
| 1. Methods of assessment | * 1. Direct observation   2. Questioning   *Evidence provided for competency determination will be Valid, Sufficient & Current* |
| 1. Context of assessment | * 1. Competency may be assessed in the work place or in an accredited centre.   2. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

###### PERFORM MENSURATION AND CALCULATION

|  |  |
| --- | --- |
| Unit Code | 741.7411.212.007.01 |
| Unit Descriptor | This unit covers the Skills, Knowledge and Attitudes required in identifying and measuring objects based on the required performance standards. |

Elements & Performance Criteria

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| --- | --- |
| ELEMENTS | PERFORMANCE CRITERIA  Italicized terms as elaborated in the Rang of Variables |
| Select measuring instruments | Object or component to be measured is identified, classified and interpreted according to the appropriate regular ***geometric shape*** and job requirements  Correct specifications are obtained from relevant sources  Appropriate measuring tools/ instruments are selected/identified as per object to be measured or job requirements |
| Carry out measurements and calculations | Accurate ***measurements*** are obtained according to job requirements  ***Calculation*** needed to complete work tasks are performed using the four basic process of addition (+), subtraction (-), multiplication (x) and division (/) including but not limited to: trigonometric functions, algebraic computations  Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks  Numerical computation is self-checked and corrected for accuracy  Instruments are read to the limit of accuracy of the tool  Systems of measurement identified and converted according to job requirements/ISO  Object or component are measured according to job requirements |

Range of Variables

|  |  |
| --- | --- |
| VARIABLES | RANGE |
| Geometric shape | Including but is not limited to:  Round  Square  Rectangular  Triangle  Sphere  Conical |
| Measuring instruments | Including but not limited to:  Micrometer (In-out, depth)  Vernier caliper (out, inside)  Dial gauge  Plastic gauge  Straight edge  Thickness gauge  Torque gauge  Telescopic gauge  Try-square  Protractor  Combination gauge  Steel rule  Voltmeter  Ammeter  Ohmmeter  Gauges (pressure and vacuum)  Thermometers |
| Measurements and calculations | Kinds of part mensuration include:  Linear  Volume  Area  Wattage  Voltage  Resistance  Amperage  Frequency  Impedance  Displacement  Inside diameter  Outside diameter  Circumference  Length  Thickness  Taper  Out of roundness  End play/thrust clearance |
| Applications | Mensuration including but not limited to:  Argo Machinery Mechanic and Repair  Auto Mechanic and Repair  Motorbike Mechanic and Repair  Welding |

Evidence Guide

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| --- | --- |
| Critical aspects of Competency | Assessment requires that the candidate:  Selected and prepared appropriate measuring instruments in accordance with job requirements  Performed measurements and calculations according to job requirements/ ISO |
| Underpinning knowledge and attitudes | TRADE MATHEMATICS / MENSURATION  Four fundamental operation  Linear measurement  Dimensions  Unit conversion  Ratio and proportion  Trigonometric functions  Algebraic equations |
| Underpinning skills | Performing calculation by addition, subtraction, multiplication and division; trigonometric functions and algebraic equations  Visualizing objects and shapes  Interpreting formulas for volume, areas, perimeters of plane and geometric figures  Proper handling of measuring instruments |
| Resource implications | The following resources should be provided:  Workplace location or simulated work area  Problems to solve  Measuring instrument appropriate to carry out tasks  Instructional materials relevant to the propose activity  Assessment of underpinning knowledge and practical skills may be combined |
| Method of assessment | Competency should be assessed through:  Direct Observation on actual workplace  Written test/questioning to underpinning knowledge  Evidence provided for competency determination will be Valid, Sufficient & Current |
| Context for assessment | Competency may be assessed on the job or simulated environment.  Assessment shall be observed while task are being undertaken whether individually or in group  Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines |

# CORE UNITS OF COMPETENCY

###### Install electric lighting systems, auxiliary outlets & lighting fixtures

***Core***

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| --- | --- |
| **Unit Code** | 741.7411.213.001.01 |
| **Unit Descriptor** | *This Core Unit covers the Skills Knowledge & Attitudes required when selecting & installing lighting systems, auxiliary outlets and lighting fixtures.* |

Elements & Performance Criteria

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| --- | --- |
| **ELEMENTS** | **PERFORMANCE CRITERIA**  ***Italicized*** terms are elaborated in the  Range of Variables |
| 1. Plan & prepare work | * 1. Instructions for the preparation of the work activity are communicated and confirmed to ensure clear understanding   2. ***Tools, equipment and personnel protective equipment (PPE)*** needed to install electrical wiring are identified, checked to ensure the work is done as intended and are safe to use in accordance with established procedures   3. ***Materials*** needed for work are obtained in accordance with established procedures   4. Materials needed to do the work are estimated according to job requirements. |
| 1. Install lighting fixtures | * 1. ***Safety procedures*** are followed   2. ***Correct procedures*** for installation of lighting fixtures are performed in line with job requirements   3. Schedule of work is followed to ensure work is completed in an agreed time, to a quality standard and with a minimum waste   4. Further instructions are sought from a supervisor if unplanned events or conditions occur   5. On-going checks of quality of work are   6. Undertaken in accordance with instructions and requirements |
| 1. Notify & record work completion | * 1. Final checks are made to ensure that work conforms with instructions and requirements   2. Supervisor is notified upon completion of work   3. Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures   4. Waste materials and hazardous substances are disposal of in accordance with environmental rules and procedures |

Range of Variables

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| 1. Tools & equipment | * 1. Electric hand tools   2. Hand tools including;- * Pliers * Screwdrivers * Wrenches * Splicers * Knives   1. Materials including Wiring, Cabling |
| 1. PPE | * 1. Working gloves   2. Safety shoes   3. Hard hat |
| 1. Light & fixtures | * 1. Flood lights/spotlights   2. Track lights   3. High/Low bay sodium vapor lamps,Halogen lamps   4. Perimeter lighting |
| 1. Safety procedures | * 1. OHS, SOP   2. Lao Electric Code (LEC) |
| 1. Installation of lighting fixtures | * 1. Floodlights/Spotlights * Horizontally aligned against wall * No gap between ceiling and lighting fixture base * Wiring at junction box cut to requirement as required * Floodlights/spotlights securely mounted   1. Track Lights * Wiring at junction box cut to requirement as required * Track light mounted securely   1. High/Low Bay Sodium Vapor Lamps * Wiring at junction box cut to requirement as required * High/Low sodium vapor lamps mounted securely   1. Halogen Lamps * Wiring at junction box cut to requirement * Halogen lamps mounted securely   1. Perimeter Lighting * Perimeter lighting installed as per plan/shop   1. Foundation constructed as per plan * Fixture wired and tested * Fixture mounted to pole |

Evidence Guide

|  |  |
| --- | --- |
| **ASPECTS OF COMPETENCY** | **EVIDENCE REQUIREMENTS** |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate has:-   * 1. Correctly interpreted work instructions   2. Selected appropriate tools, equipment and materials for Installing lighting fixtures   3. Selected and used correct personnel protective equipment   4. Demonstrated correct procedures for installation of lighting fixtures including, floodlights/spotlights, track lights, high/low bay sodium vapor lamps, halogen lamps and perimeter lighting   5. Followed safety procedures   6. Cleaned worksite, tools and equipment   7. Stored surplus materials |
| 1. Underpinning knowledge | * 1. Types of lighting fixtures and installation technique   2. Proper use of hand tools   3. Knowledge of Lao Electrical Code (LEC) requirements   4. Ratings of lighting fixture   5. Principles of electric lighting |
| 1. Underpinning skills | * 1. Interpreting electrical drawings and plans   2. Preparing materials   3. Interpreting product technical brochure   4. Proper use of hand tools   5. Splicing   6. Dressing of wires   7. Terminating wires |
| 1. Resource implications | * 1. Workplace location   2. Tools, materials and equipment appropriate to building wiring electrical installation   3. Drawings and specifications relevant to the task |
| 1. Methods of assessment | Competency can be assessed through:-   * 1. Direct observation   2. Questioning   3. Portfolio   *Evidence provided for competency determination will be Valid, Sufficient & Current* |
| 1. Context of assessment | * 1. Competency may be assessed in the work place or in an accredited centre.   2. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines. |

###### Install different types of wiring methods for building installation

|  |  |
| --- | --- |
| **Unit Code** | 741.7411.213.002.01 |
| **Unit Descriptor** | *This Unit covers the Skills Knowledge & Attitudes required for installing, different types of wiring installation methods used in residential, and building installation* |

Elements & Performance Criteria

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| --- | --- |
| **ELEMENTS** | PERFORMANCE CRITERIA  ***Italicized*** terms are elaborated in the  Range of Variables |
| Select wiring devices | * 1. Drawings are read and interpreted to determine job requirements   2. Correct type and quantity of wiring devices and other materials are identified in line with job requirements   3. ***Tools and equipment*** are selected in line withjob requirements   4. Correct ***PPE*** are identified and selected in line with safety requirements |
| *Install wiring devices* | * 1. ***Safety procedures*** are followed based on safety regulations   2. ***Correct procedures for installation*** of wiring devices are performed in line with job requirements   3. Schedule of work is followed based on agreed time, quality standard and minimum wastage   4. Further instructions are sought if unplanned events or conditions occur   5. On-going checking of quality of work are done in accordance with instructions and requirements |
| Notify completion of work | 1. Final checks are made to ensure that work conforms with instructions and to requirements 2. Supervisor is notified upon completion of work 3. Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures 4. Waste materials and hazardous substances are disposal of in accordance with environmental rules and procedures 5. Work area is cleaned and made safe |

Range of Variables

|  |  |
| --- | --- |
| **VARIABLES** | **RANGE** |
| Wiring installation methods and devices | * 1. Flat cables using clips   2. PVC conduit   3. Rigid Metallic conduits   4. Installlation in concrete |
| Tools and equipment | * 1. Pliers   2. Screwdrivers   3. Wrenches   4. Wire splicers   5. Knives   6. Floor & Ground fault |
| Personal protective equipment (PPE) | May include but not limited to:   * 1. Working gloves   2. Safety shoes   3. Hard hat |
| Safety procedures | * 1. Lao Electrical Code   2. Industrial safety   3. Electrical safety |
| Installation | * 1. Horizontally and vertically aligned   2. No gap between plate cover and wall   3. Wire cut to requirement   4. All bolts tightened for rigid mounting |

Evidence Guide

|  |  |
| --- | --- |
| **ASPECTS OF COMPETENCY** | **EVIDENCE REQUIREMENTS** |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate has:-   * 1. Correctly interpreted work instructions   2. Selected appropriate tools, equipment and materials for Installing different wiring installation methods   3. Selected and used correct personnel protective equipment   4. Demonstrated correct procedures for installation of flat cables using clips, PVC conduits and Metallic conduits   5. Followed safety procedures   6. Cleaned worksite, tools and equipment   7. Stored surplus materials |
| 1. Underpinning knowledge | * 1. Types of s and installation technique   2. Proper use of hand tools   3. Knowledge of Lao Electrical Code (LEC) requirements   4. Ratings of lighting fixture   5. Local Electrical guidelines |
| 1. Underpinning skills | * 1. Interpreting electrical drawings and plans   2. Preparing materials   3. Interpreting product technical brochure   4. Proper use of hand tools   5. Splicing   6. Preparation of conduits   7. Terminating wires |
| 1. Resource implications | * 1. Workplace location   2. Tools, materials and equipment appropriate to building wiring electrical installation   3. Drawings and specifications relevant to the task |
| 1. Methods of assessment | Competency can be assessed through:-   * 1. Direct observation   2. Questioning   3. Portfolio   *Evidence provided for competency determination will be Valid, Sufficient & Current* |
| 1. Context of assessment | * 1. Competency may be assessed in the work place or in an accredited centre.   2. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines. |

# ANNEX

* Lao World of Work
* Lao Electrical Sub Sector Codes
* Competency Map Electrician
* Competency Standards Development Team
* Notes/ References

## LAO World of Work

**Building Electrician**

***CARREER PATH***

**Industrial Electrician**

**MASTER**

**ELECTRICIAN**

**JOB TITLE**

**JOB FUNCTION**

**COMPETENCY**

**STANDARD**

**AWARD**

**LEVEL**

**WORLD OF WORK WORK**

**LAO PDR**

**CONSTRUCTION and INDUSTRY SECTOR**

**SECONDARY SCHOOL**

**SEMI SKILLED**

**WORKER**

**SKILLED**

**WORKER**

**ADVANCED**

**SKILLED**

**WORKER**

**SUPERVISOR**

9

OR

12

SCHOOL YEARS

**I**

**General Electrician**

**MASTER**

**ELECTRICIAN**

**II**

**III**

**IV**

**Building Electrician**

**General Electrician**

**TO WORK**

**WORK EXPERIENCE**

**&**

**ASSESMENT**

OR WITH CERTIFICATE

**I**

**TO WORK**

**WORK EXPERIENCE**

**&**

**ASSESMENT**

OR WITH CERTIFICATE II

&

WORK EXPIRIENCE

**TO WORK**

**WORK EXPERIENCE**

**&**

**CERTIFICATE III**

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**WORK EXPERIENCE**

**Industrial Electrician**

**TO WORK**

Annex:

## LAO Electrical Sub-Sector Code

**Sub-Sector Code:**

00 No sub-sector

10 Electrician,General

20 Electrician, Building

40 Electrician Industrial

**Competency Unit Standards by Sub-Sector:**

|  |  |
| --- | --- |
| **Unit No** | **Unit Title** |
|  | **Basic** |
| 741.7411.211.001.01 | Respond to Workplace Communication |
| 741.7411.211.002.01 | Work with Others |
| 741.7411.211.003.01 | Demonstrate Positive Work Values |
| 741.7411.211.004.01 | Practice Housekeeping procedures |
| 741.7411.211.005.01 |  |
|  | **Common** |
| 741.7411.212.001.01 | Prepare Construction Materials and Tools |
| 741.7411.212.002.01 | Observe Procedures, Specifications and Manuals of Instructions |
| 741.7411.212.003.01 | Interpret Technical Drawings and Plans |
| 741.7411.212.004.01 | Use Mathematical Concepts and Techniques |
| 741.7411.212.005.01 | Maintain Tools and Equipment |
| 741.7411.212.006.01 | Perform Mensuration and Calculation |
| 741.7411.212.007.01 |  |
| 741.7411.212.008.01 |  |
|  | **Core** |
| 741.7411.213.001.01 | Install electric lighting systems, auxiliary outlets & lighting fixtures |
| 741.7411.213.002.01 | Install different types of Wiring Methods for Building Installation |
| 741.7411.213.003.01 |  |
| 741.7411.213.004.01 |  |
| 741.7413.213.005.01 |  |

## Competency Map Electrician

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Basic  Competencies** | Receive & respond to Workplace communication | Work with others | Demonstrate work values | Practice basic housekeeping procedures | Participate in workplace communication | Work in a team environment | Practice career professionalism |
|  |  |  |  |  |  |  |  |
| **Common Competencies** | Practice OHS procedures | Lead workplace communication | Lead small working teams | Develop & practice negotiation skills | Solve problems related to work activities | Use Mathematical concepts & techniques | Use relevant technologies |
| Use Specialised communication skills | Develop Team & individuals | Apply problem solving techniques in the workplace | Manage project costs & quality | Collect Analyse & organise information | Plan & organise work | Provide environmental protection |
| Prepare Construction Materials, tools equipment | Observe procedures, specifications & manuals of instructions | Interpret technical drawings & plans | Perform mensurations & calculations | Maintain tools & equipment | Apply OHS in the workplace | Apply gender & social equity principles & policies |
|  |  |  |  |  |  |  |  |
| **Core  Competencies** | Prepare electrical materials & tools | Perform roughing-in for basic electrical layout | Install wiring devises for power, lights & auxiliary outlets | Install electrical wiring | Install basic electrical protection systems | Install basic auxiliary outlets & lighting fixtures | Commission low volt electrical systems |
| Perform roughing-in for communication & distribution systems | Install wiring devices for floor & ground fault current interrupting outlets | Install electrical system for lightning & grounding | Install electric lighting on auxiliary outlets & lighting fixtures | Install communication, signalling devices & remote control systems on auxiliary equipment | Commission installed electrical systems | Perform maintenance & trouble shooting work |
| Prepare electrical & hydraulic tools | Prepare Bus & under-floor ducts for electrical installation | Install wiring devices for floor & ground fault current interrupting outlets | Installation of standard electrical protection system for lighting & grounding | Install electric lighting systems, auxiliary outlets & lighting fixtures | Install data measurement & control systems on electrical equipment | Assemble & install electric motor control systems |
| Supervise installation & maintenance on electrical systems & equipment | Commission electrical system/equipment | Programme & install PLC systems |  |  |  |  |

Annex:

## Competency Standard Development Team

***SSTVET Project***

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Name and Surname | Organization/Company | Job Expert |
|  | MR. ROLAND OGUING | SSTVET Project | International Consultant in Electrical Technology |
|  | MR. SYSOUK MONGDAVANH | CHAMPASAK TECHNICAL VOCATIONAL COLLEGE (CTVC) | National Consultant in Electrical Technology |

***Resource Person / Methodologist***

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mr.Bountham SITTHIMANUOTHAM | SSTVET Project | M&E Specialist |
|  | Ms.Somphalang NGONPHETSY | VEDI | Head of Curriculum Development Section |
|  | Mrs. Angkhasaya SISOUPHANH | TVED, MoES | Deputy of M&E Division |

***Resource Persons / Company & Industry***

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mr. VITHOUNE PHOUMIVONG | ELECTRICITE DU LAO - TRAINING CENTER (EDL - TC) | Electrrical Instructor |
|  | Mr. SOMBATH SOUTHHISOMBATH | ELECTRICITE DU LAO - TRAINING CENTER (EDL - TC | Electrrical Instructor |
|  |  |  |  |

***Resource Persons / Public & Private TVET Institutions***

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mr. BOUNTHAVY SAYYAVONG | TECHNICAL COLLEGE OF VIENTIANE PROVINCE (TCVP) | Teacher – Electrical Department |
|  | Mr. KIKHAM POUNNAVONG | VOCATIONAL EDUCATION DEVELOPMENT INSITUTE (VEDI) | Teacher – Electrical Department |
|  | Mr. LADSAMY THONGPASOM | CHAMPASAK TECHNICAL VOCATIONAL COLLEGE (CTVC) | Teacher – Electrical Department |
|  | Mr. KHOUNMY SOUVANTHA | SAVANNAKHET TECHNICAL VOCATIONAL COLLEGE (STVC) | Teacher – Electrical Department |
|  | Mr. LAMMONE LUANGSALATH | SAVANNAKHET TECHNICAL VOCATIONAL COLLEGE (STVC) | Teacher – Electrical Department |
|  | Mr. SINPHET SAKKATHINE | CHAMPASAK TECHNICAL VOCATIONAL COLLEGE (CTVC) | Head – Electrical Department |
|  | Mr. BOUNNAM SAYKOSY | KHAMMOUANE TECHNICAL VOCATIONAL COLLEGE (KMTVC) | Teacher – Electrical Department |
|  | Mr. MYNA TANHTHAPHENGSAY | KHAMMOUANE TECHNICAL VOCATIONAL COLLEGE (KMTVC) | Head – Electrical Department |
|  | Mr. BOUNYOU CHANTHAVONG | POLYTECHNIC COLLEGE (PTC) | Teacher – Electrical Department |
|  | Mr. KHAMSONE CHANSY | PAKPASAK TECHNICAL COLLEGE (PSTC) | Head – Electrical Department |
|  | Mr. LAMPHONE SENGSAVANG | POLYTECHNIC COLLEGE (PTC) | Deputy Head – Electrical Department |
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## Notes / References:

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