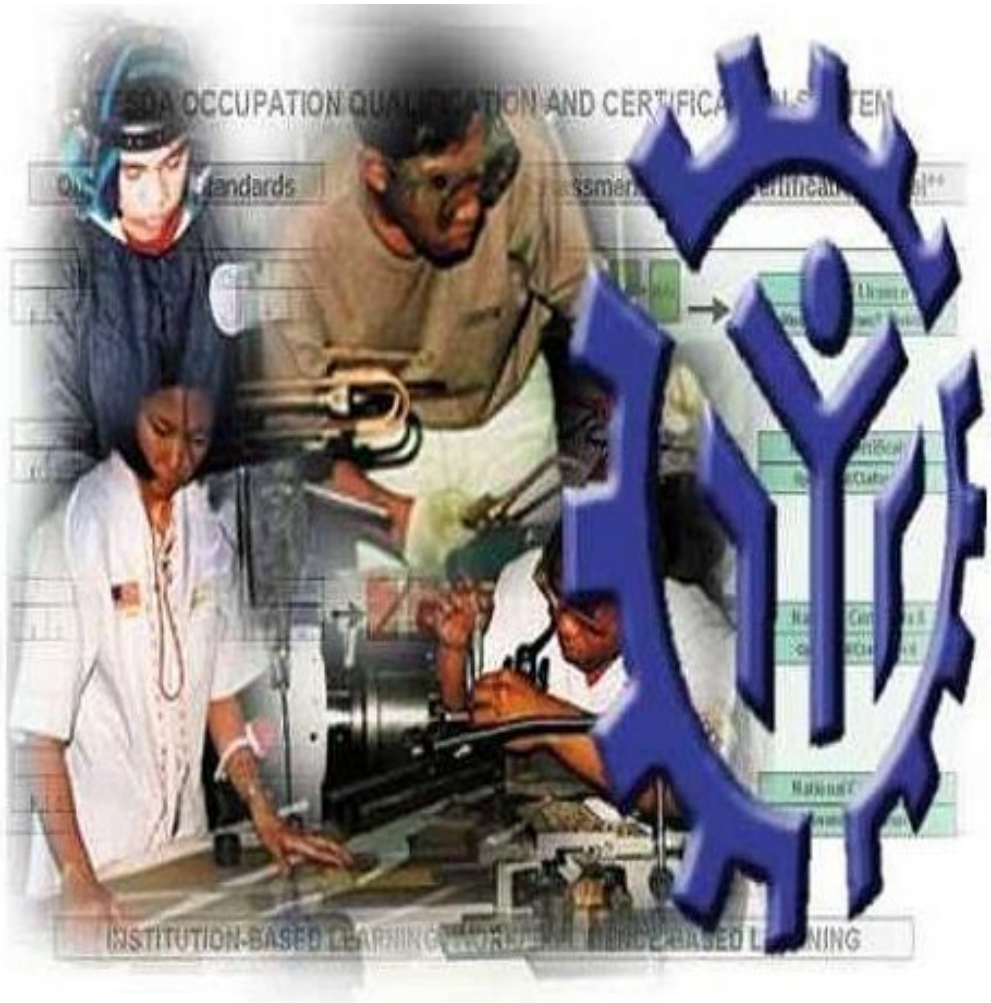
TRAINING REGULATIONS



TRANSMISSION LINE INSTALLATION AND MAINTENANCE NC II

UTILITIES SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

Technical Education and Skills Development Act of 1994
(Republic Act No. 7796)

Section 22, "Establishment and Administration of the National Trade Skills Standards" of the RA 7796 known as the TESDA Act mandates TESDA to establish national occupational skill standards. The Authority shall develop and implement a certification and accreditation program in which private industry group and trade associations are accredited to conduct approved trade tests, and the local government units to promote such trade testing activities in their respective areas in accordance with the guidelines to be set by the Authority.

The Training Regulations (TR) serve as basis for the:

1 Competency assessment and certification;
2 Registration and delivery of training programs; and
3 Development of curriculum and assessment instruments.

Each TR has four sections:

Section 1 Definition of Qualification - refers to the group of competencies that describes the different functions of the qualification.

Section 2 Competency Standards - gives the specifications of competencies required for effective work performance.

Section 3 Training Arrangements - contains information and requirements in designing training program for certain Qualification. It includes curriculum design, training delivery; trainee entry requirements; tools and requirements; tools and equipment; training facilities and trainer's qualification.

Section 4 Assessment and Certification Arrangements - describes the policies governing assessment and certification procedure

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UTILITIES SECTOR

TRANSMISSION LINE INSTALLATION AND MAINTENANCE NATIONAL CERTIFICATE LEVEL II

TRAINING REGULATIONS FOR
TRANSMISSION LINE INSTALLATION AND MAINTENANCE NC II

Section 1 TRANSMISSION LINE INSTALLATION AND MAINTENANCE NC II QUALIFICATION

The **Transmission Line (T/L) Installation and Maintenance NC II** Qualification consist of competencies that a person must achieve to enable him/her to perform required competencies of a transmission lineman in inspection and performance of transmission line works on 69 KV and below.

Specifically, this Training Regulations in Transmission Line Installation and Maintenance NC II involves competencies in inspecting transmission line, poles, towers and appurtenances, performing ground transmission line works and performing overhead maintenance works on 69kv and below.

This Qualification is packaged from the competency map of the Utilities industry sector as shown in Annex A.

The units of competency comprising this qualification include the following:

Code	BASIC COMPETENCIES
5 00 311 1 05	Participate in workplace communication
5 00 311 1 06	Work in team environment
5 00 311 1 07	Practice career professionalism
5 00 311 1 08	Practice occupational health and safety procedures

Code	COMMON COMPETENCIES
UTL311203	Apply quality standards
UTL311206	Comply with environmental protection procedures
UTL311205	Operate and maintain line tools and equipment
UTL311201	Observe procedures, specifications and manuals of instruction
UTL311207	Perform computer operations

Code	CORE COMPETENCIES
UTL741301	Inspect transmission line, poles, towers and appurtenances
UTL741302	Perform ground transmission line works
UTL741303	Perform overhead maintenance works

A person who has achieved this Qualification is competent to be:

- Transmission Lineman

SECTION 2: COMPETENCY STANDARDS

This section gives the details of the contents of the basic, common, and core units of competency required for Transmission Line Installation and Maintenance NC II.

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 500311105

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources*** 1.2 Effective questioning , active listening and speaking skills are used to gather and convey information 1.3 Appropriate ***medium*** is used to transfer information and ideas 1.4 Appropriate non- verbal communication is used 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed 1.6 Defined workplace procedures for the location and ***storage*** of information are used 1.7 Personal interaction is carried out clearly and concisely	1.1 Effective communication 1.2 Different modes of communication 1.3 Written communication 1.4 Organizational policies 1.5 Sources of information 1.6 Types of question 1.7 Medium of communication 1.8 Flow of communication 1.9 Storage system 1.10 Telephone courtesy	1.1 Follow simple spoken language 1.2 Performing routine workplace duties following simple written notices 1.3 Ability to relate to people of social range in the workplace 1.4 Gather and provide information in response to workplace requirements 1.5 Listening skills 1.6 Questioning skills 1.7 Workplace language skills
2. Participate in workplace meetings and discussions	2.1 Team meetings are attended on time 2.2 Own opinions are clearly expressed and those of others are listened to without interruption 2.3 Meeting inputs are consistent with the meeting purpose and established ***protocols*** 2.4 ***Workplace interactions*** are conducted in a courteous manner	2.1. Communication procedures and systems 2.2. Meeting protocols 2.3. Nature of workplace meetings 2.4. Barriers of communication 2.5. Workplace interactions 2.6. Nonverbal communication	2.1. Ability to relate to people of social range in the workplace 2.2. Interpersonal communication skill 2.3. Observing meeting protocols

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded to 2.6 Meetings outcomes are interpreted and implemented		
3. Complete relevant work related documents	3.1 Range of ***forms*** relating to conditions of employment are completed accurately and legibly 3.2 Workplace data is recorded on standard workplace forms and documents 3.3 Basic mathematical processes are used for routine calculations 3.4 Errors in recording information on forms/ documents are identified and properly acted upon 3.5 Reporting requirements to supervisor are completed according to organizational guidelines	3.1 Technology relevant to the enterprise and the individual's work 3.2 Types of workplace documents and forms 3.3 Basic mathematical concepts 3.4 Kinds of workplace report	3.1 Apply basic mathematical processes of addition, subtraction, division and multiplication 3.2 Data recording 3.3 Report writing

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate sources	1.1. Team members 1.2. Suppliers 1.3. Trade personnel 1.4. Local government 1.5. Industry bodies
2. Medium	2.1. Memorandum 2.2. Circular 2.3. Notice 2.4. Information discussion 2.5. Follow-up or verbal instructions 2.6. Face to face communication
3. Storage	3.1. Manual filing system 3.2. Computer-based filing system
4. Forms	4.1. Personnel forms, telephone message forms, safety reports
5. Workplace interactions	5.1. Face to face 5.2. Telephone 5.3. Electronic and two way radio 5.4. Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
6. Protocols	6.1. Observing meeting 6.2. Compliance with meeting decisions 6.3. Obeying meeting instructions

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Prepared written communication following standard format of the organization 1.2. Accessed information using communication equipment 1.3. Made use of relevant terms as an aid to transfer information effectively 1.4. Conveyed information effectively adopting the formal or informal communication
2. Resource Implications	2.1. Fax machine 2.2. Telephone 2.3. Writing materials 2.4. Internet
3. Methods of Assessment	3.1. Direct Observation 3.2. Oral interview and written test
4. Context for Assessment	4.1. Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY: WORK IN TEAM ENVIRONMENT

UNIT CODE : 500311106

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Describe team role and scope	1.1. The ***role and objective of the team*** is identified from available ***sources of information*** 1.2. Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources	1.1 Team roles 1.2 Definition of Team 1.3 Difference between team and group 1.4 Different source of information 1.5 Objectives and goals of team	1.1 Describing the team role and scope
2. Identify own role and responsibility within team	2.1. Individual role and responsibilities within the team environment are identified 2.2. Roles and responsibility of other team members are identified and recognized 2.3. Reporting relationships within team and external to team are identified	2.1. Team structure 2.2. Roles and responsibility of team members 2.3. Teams in work environment 2.4. Fundamental rights at work including gender sensitivity	2.1. Communicate appropriately, consistent with the culture of the workplace 2.2. Identifying individual role and responsibility 2.3. Identifying external relationship
3. Work as a team member	3.1. Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives 3.2. Effective and appropriate contributions made to complement team activities and objectives, based on individual skills and competencies and ***workplace context*** 3.3. Observed protocols in reporting using standard operating procedures 3.4. Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members	3.1 Communication process 3.2 Group planning and decision making 3.3 Team goals and objectives 3.4 Understanding individual competencies relative to teamwork 3.5 Types of individuals 3.6 Role of leaders	3.1 Interacting effectively with others 3.2 Setting team goals and expectations

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	1.1. Work activities in a team environment with enterprise or specific sector 1.2. Limited discretion, initiative and judgement maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	2.1. Standard operating and/or other workplace procedures 2.2. Job procedures 2.3. Machine/equipment manufacturer's specifications and instructions 2.4. Organizational or external personnel 2.5. Client/supplier instructions 2.6. Quality standards 2.7. OHS and environmental standards
3. Workplace context	3.1. Work procedures and practices 3.2. Conditions of work environments 3.3. Legislation and industrial agreements 3.4. Standard work practice including the storage, safe handling and disposal of chemicals 3.5. Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Operated in a team to complete workplace activity 1.2. Worked effectively with others 1.3. Conveyed information in written or oral form 1.4. Selected and used appropriate workplace language 1.5. Followed designated work plan for the job 1.6. Reported outcomes
2. Resource Implications	The following resources **MUST** be provided: 2.1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2. Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency may be assessed through: 3.1. Observation of the individual member in relation to the work activities of the group 3.2. Observation of simulation and or role play involving the participation of individual member to the attainment of organizational goal 3.3. Case studies and scenarios as a basis for discussion of issues and strategies in teamwork
4. Context for Assessment	4.1. Competency may be assessed in workplace or in a simulated workplace setting 4.2. Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY: PRACTICE CAREER PROFESSIONALISM
UNIT CODE : 500311107
UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in promoting career growth and advancement.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Integrate personal objectives with organizational goals	1.1. Personal growth and work plans are pursued towards improving the qualifications set for the profession 1.2. Intra- and interpersonal relationships are maintained in the course of managing oneself based on performance ***evaluation*** 1.3. Commitment to the organization and its goal is demonstrated in the performance of duties	1.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 1.2 Understanding personal objectives 1.3 Understanding organizational goals 1.4 Difference between intra and interpersonal relationship 1.5 Performance evaluation	1.1 Demonstrate Intra and Interpersonal skills at work 1.2 Demonstrate personal commitment in work
2. Set and meet work priorities	2.1. Competing demands are prioritized to achieve personal, team and organizational goals and objectives. 2.2. ***Resources*** are utilized efficiently and effectively to manage work priorities and commitments 2.3. Practices along economic use and maintenance of equipment and facilities are followed as per established procedures	2.1 Company policies 2.2 Company operations, procedures and standards 2.3 Time management 2.4 Basic strategic planning concepts 2.5 Resource utilization and management	2.1 Managing goals and time 2.2 Practice economic use of resources and facilities 2.3 Setting work priorities 2.4 Practice time management
3. Maintain professional growth and development	3.1. ***Trainings and career opportunities*** are identified and availed of based on job requirements 3.2 ***Recognitions*** are sought/received and demonstrated as proof of career advancement 3.3 ***Licenses and/or certifications*** relevant to job and career are obtained and renewed	3.1 Career development opportunities 3.2 Company recognition and incentives 3.3 Information on relevant licenses and or certifications	3.1 Determining personal career development needs Identifying career opportunities

RANGE OF VARIABLES

VARIABLE	RANGE
1. Evaluation	1.1 Performance Appraisal 1.2 Psychological Profile 1.3 Aptitude Tests
2. Resources	2.1 Human 2.2 Financial 2.3 Technology 2.3.1 Hardware 2.3.2 Software
3. Trainings and career opportunities	3.1 Participation in training programs 3.1.1 Technical 3.1.2 Supervisory 3.1.3 Managerial 3.1.4 Continuing Education 3.2 Serving as Resource Persons in conferences and workshops
4. Recognitions	4.1 Recommendations 4.2 Citations 4.3 Certificate of Appreciations 4.4 Commendations 4.5 Awards 4.6 Tangible and Intangible Rewards
5. Licenses and/or certifications	5.1 National Certificates 5.2 Certificate of Competency 5.3 Support Level Licenses 5.4 Professional Licenses

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Attained job targets within key result areas (KRAs) 1.2 Maintained intra - and interpersonal relationship in the course of managing oneself based on performance evaluation 1.3 Completed trainings and career opportunities which are based on the requirements of the industries 1.4 Acquired and maintained licenses and/or certifications according to the requirement of the qualification
2. Resource Implications	The following resources **MUST** be provided: 2.1 Workplace or assessment location 2.2 Case studies/scenarios
3. Methods of Assessment	Competency may be assessed through: 3.1 Portfolio Assessment 3.2 Interview 3.3 Simulation/Role-plays 3.4 Observation 3.5 Third Party Reports 3.6 Exams and Tests
4. Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES

UNIT CODE : 500311108

UNIT DESCRIPTOR : This unit covers the outcomes required to comply with regulatory and organizational requirements for occupational health and safety.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify hazards and risks	1.1 ***Safety regulations*** and workplace safety and hazard control practices and procedures are clarified and explained based on organization procedures 1.2 ***Hazards/risks*** in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment in accordance with organization procedures 1.3 ***Contingency measures*** during workplace accidents, fire and other emergencies are recognized and established in accordance with organization procedures	1.1 OHS procedures and practices and regulations 1.2 Hazards/risks identification and control 1.3 OHS indicators 1.4 Organizational contingency practices	1.1 Hazards/risks identification and control skills 1.2 Practice of safety and health procedures and personal hygiene
2. Evaluate hazards and risks	2.1 Terms of maximum tolerable limits which when exceeded will result in harm or damage are identified based on threshold limit values (TLV) 2.2 Effects of the hazards are determined 2.3 OHS issues and/or concerns and identified safety hazards are reported to designated personnel in accordance with workplace requirements and relevant workplace OHS legislation	2.1 Threshold Limit Value (TLV) 2.2 Effects of safety hazards	2.1 Communication skills 2.2 Reporting safety hazards
3. Control hazards and risks	3.1 Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed 3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies	3.1 Personal hygiene practices 3.2 Organization safety and health protocol 3.3 Company emergency procedure practices	3.1 Practice of personal hygiene 3.2 Respond to emergency

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.3 ***Personal protective equipment (PPE)*** is correctly used in accordance with organization OHS procedures and practices 3.4 Appropriate assistance is provided in the event of a workplace emergency in accordance with established organization protocol		
4. Maintain OHS awareness	4.1 ***Emergency-related drills and trainings*** are participated in as per established organization guidelines and procedures 4.2 ***OHS personal records*** are completed and updated in accordance with workplace requirements	4.1 Workplace OHS personal records 4.2 Information on emergency-related drills	4.1 Practice emergency-related drill skills in the workplace

RANGE OF VARIABLES

VARIABLE	RANGE
1. Safety regulations	May include but are not limited to: 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Occupational Safety and Health Standards 1.6 DOLE regulations on safety legal requirements 1.7 ECC regulations
2. Hazards/Risks	May include but are not limited to: 2.1 Physical hazards – impact, illumination, pressure, noise, vibration, temperature, radiation 2.2 Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects 2.3 Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors 2.4 Electrical hazards – electrically energized equipment and conductors 2.5 Ergonomics 2.5.1 Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, varying metabolic cycles 2.5.2 Physiological factors – monotony, personal relationship, work out cycle
3. Contingency measures	May include but are not limited to: 3.1 Evacuation 3.2 Isolation 3.3 Decontamination 3.4 (Calling designed) emergency personnel
4. PPE	May include but are not limited to: 4.1 Mask 4.2 Gloves 4.3 Goggles 4.4 Hair Net/cap/bonnet 4.5 Face mask/shield 4.6 Ear muffs 4.7 Apron/Gown/coverall/jump suit 4.8 Anti-static suits

VARIABLE	RANGE
5. Emergency-related drills and training	5.1 Fire drill 5.2 Earthquake drill 5.3 Basic life support/CPR 5.4 First aid 5.5 Spillage control 5.6 Decontamination of chemical and toxic 5.7 Disaster preparedness/management
6. OHS personal records	6.1 Medical/Health records 6.2 Incident reports 6.3 Accident reports 6.4 OHS-related training completed

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Explained clearly established workplace safety and hazard control practices and procedures 1.2 Identified hazards/risks in the workplace and its corresponding indicators in accordance with company procedures 1.3 Recognized contingency measures during workplace accidents, fire and other emergencies 1.4 Identified terms of maximum tolerable limits based on threshold limit value (TLV). 1.5 Followed Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace 1.6 Used Personal Protective Equipment (PPE) in accordance with company OHS procedures and practices 1.7 Completed and updated OHS personal records in accordance with workplace requirements
2. Resource Implications	The following resources must be provided: 2.1 Workplace or assessment location 2.2 OHS personal records 2.3 PPE 2.4 Health records
3. Methods of Assessment	Competency may be assessed through: 3.1 Portfolio Assessment 3.2 Interview 3.3 Case Study/Situation
4. Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

COMMON COMPETENCIES

UNIT TITLE : **APPLY QUALITY STANDARDS**

UNIT CODE : **UTL311203**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes needed to apply quality standards in the workplace. The unit also includes the application of relevant safety procedures and regulations, organization procedures and customer requirements.

ELEMENT	PERFORMANCE CRITERIA ***Italicized Bold*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Assess quality of received materials or components	1.1. Work instructions are obtained and work is carried out in accordance with standard operating procedures 1.2. Received ***materials or component parts*** are checked against workplace standards and specifications 1.3. Faulty material or components related to work are identified and isolated 1.4. ***Faults*** and any identified causes are recorded and/or reported to the supervisor concerned in accordance with workplace procedures 1.5. Faulty materials or components are replaced in accordance with workplace procedures	1.1. Relevant production processes, materials and products 1.2. Characteristics of materials, software and hardware used in production processes 1.3. Quality checking procedures 1.4. Quality Workplace procedures 1.5. Identification of faulty materials related to work	1.1. Reading skills required to interpret work instruction 1.2. Critical thinking 1.3. Interpreting work instructions
2. Assess own work	2.1. ***Documentation*** relative to quality within the company is identified and used 2.2. Completed work is checked against workplace standards relevant to the task undertaken 2.3. Faulty pieces are identified and isolated 2.4. Information on the quality and other indicators of production performance is recorded in accordance with workplace procedures 2.5. Deviations from specified ***quality standards***, causes are documented and reported in accordance with the workplace standards operating procedures	2.1. Safety and environmental aspects of production processes 2.2. Fault identification and reporting 2.3. Workplace procedure in documenting completed work 2.4. Workplace Quality Indicators	2.1. Carry out work in accordance with OHS policies and procedures

ELEMENT	PERFORMANCE CRITERIA ***Italicized Bold*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Engage in quality improvement	3.1. Process improvement procedures are participated in relation to workplace assignment 3.2. Work is carried out in accordance with process improvement procedures 3.3. Performance of operation or quality of product or service to ensure ***customer*** satisfaction is monitored	3.1. Quality improvement processes 3.2. Company customers defined	3.1. Solution providing and decision-making 3.2. Practice company process improvement procedure

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials/components	1.1. Materials may include but not limited to: 1.1.1. Wires 1.1.2. Cables 1.1.3. Electrical tape, etc. 1.2. Components may include but not limited to: 1.2.1. Cross-arms and braces 1.2.2. Conductors and accessories 1.2.3. Insulators, etc.
2. Faults	Faults may include but not limited to: 2.1. Components/materials not according to specification 2.2. Components/materials contain manufacturing defects 2.3. Components/materials do not conform with government regulation i.e., PEC, environmental code 2.4. Components/materials have safety defect
3. Documentation	3.1. Organization work procedures 3.2. Manufacturer's instruction manual 3.3. Customer requirements 3.4. Forms
4. Quality standards	4.1. Quality standards may relate but not limited to the following: 4.1.1. Materials 4.1.2. Component parts 4.1.3. Final product
5. Customer	5.1. Co-worker 5.2. Suppliers 5.3. Client 5.4. Organization receiving the product or service

EVIDENCE GUIDE

1. Critical aspect of competency	Assessment requires evidence that the candidate: 1.1. Carried out work in accordance with the company's standard operating procedures 1.2. Performed task according to specifications 1.3. Reported defects detected in accordance with standard operating procedures 1.4. Carried out work in accordance with the process improvement procedures
2. Resource implication	The following resources should be provided: 2.1. Materials and component parts and equipment to be used in a real or simulated electronic production situation
3. Method of assessment	Competency in this unit may be assessed through: 3.1. Observation 3.2. Questioning 3.3. Practical demonstration
4. Context of Assessment	4.1. Assessment may be conducted in the workplace or in a simulated work environment.

UNIT TITLE : **COMPLY WITH ENVIRONMENTAL PROTECTION PROCEDURES**

UNIT CODE : **UTL311206**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to implement and monitor environmental protection policies and procedures including accessing relevant information concerning environmental protection regulations and procedures, and implementing and monitoring procedures concerning environmental hazards, related control procedures, environmental training arrangements, and required records and documentation

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Access information concerning environmental protection regulations and procedures	1.1. Relevant provisions of environmental legislation and codes of practice are accurately followed 1.2. Information on workplace environmental policies, procedures and programs is stored in a readily accessible location and manner 1.3. ***Information*** is accurately and clearly explained to the work team and updated according to change in workplace policy 1.4. Information about the outcomes of environmental risk identification and control procedures is provided to the appropriate personnel	1.1. Relevant environmental protection regulations & codes of practice 1.2. Environmental risks associated with workplace operations and related precautions to control the risk 1.3. Environmental protection standards required in the workplace	1.1. Workplace reporting and recording processes and procedures 1.2. Communication skills 1.3. Accessing information and data 1.4. Ability to recognize potential environmental risks and ways of minimizing them
2. Implement and monitor procedures concerning environmental hazards	2.1 Existing and potential ***environmental hazards*** in the workplace are identified and reported 2.2 Identified hazards are assessed in relation to relevant environmental protection policies 2.3 ***Workplace procedures for dealing with hazardous events*** are implemented wherever necessary to ensure that prompt control action is taken 2.4 ***Personal protective equipment (PPE)*** are obtained and used in accordance with job requirements	2.1 Relevant environmental protection regulations & codes of practice 2.2 Workplace procedures and guidelines for implementing and monitoring procedures concerning environmental hazards 2.3 Workplace environmental hazards and related hazard	2.1 Workplace reporting and recording processes and procedures 2.2 Communication skills 2.3 Problem solving skills 2.4 Ability to: 2.5 recognize potential environmental hazards and ways of minimizing them 2.6 counsel, advise and inform

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.5 Hazardous events are investigated to identify causes, and control measures are implemented to prevent recurrence and minimize risks of such events	control measures 2.4 Equipment and resources required when implementing and monitoring environmental protection procedures 2.5 Organizational structure and site layout	others on environmental protection matters 2.7 identify and correctly use equipment and vehicles in accordance with environmental protection regulations and guidelines
3. Implement and monitor environmental control procedures	3.1 Existing environmental protection measures are implemented, monitored and reviewed 3.2 Work procedures to protect environment are implemented and adherence to them by the work group is monitored 3.3 Required improvements to existing control measures are identified, including required resources for implementation, and reported to appropriate personnel	3.1 Relevant environmental protection regulations & codes of practice 3.2 Workplace procedures and guidelines for implementing and monitoring environmental control procedures 3.3 Equipment and resources required when implementing and monitoring environmental control procedures 3.4 Organizational structure and site layout	3.1 Workplace reporting and recording processes and procedures 3.2 Communication skills 3.3 Accessing information and data 3.4 Problem solving skills 3.5 Ability to: 3.6 counsel, advise and inform others on environmental control procedures 3.7 identify and correctly use equipment and vehicles in accordance with environmental control procedures, regulations and guidelines

RANGE OF VARIABLES

VARIABLE	RANGE
1 Environment	Environment may include: 1.1 Indoor 1.2 Outdoor 1.3 Marine 1.4 Atmospheric
2 Information	Information/documents may include: 2.1 Workplace procedures and practices related to environmental protection, including all financial, operating and customer service policies and procedures 2.2 OHS and environmental protection regulations 2.3 Workplace housekeeping procedures and policies 2.4 Code of practice for environmental protection 2.5 Material safety data sheets 2.6 Policies and procedures for entry and work in confined spaces 2.7 Manufacturer's instructions concerning the use and servicing of equipment 2.8 Emergency procedures 2.9 Regulations and policies concerning noise, waste disposal/reprocessing, handling of dangerous goods/hazardous substances and other environmental protection issues 2.10 Standards and certification requirements 2.11 Quality assurance procedures
3 Appropriate personnel	Appropriate personnel may include: 3.1 Workplace personnel including supervisors and management 3.2 Site visitors 3.3 Contractors 3.4 Official representatives
4 Environmental hazards	Environmental hazards may include: 4.1 Oils and lubricants 4.2 Exhaust fumes 4.3 Gas 4.4 Smoke 4.5 Chemicals and detergents 4.6 Rubbish 4.7 Noise 4.8 Wastes

VARIABLE	RANGE
5 Workplace procedures for dealing with hazardous events	Procedures may include: 5.1 Inspection and housekeeping 5.2 Maintenance including plant and equipment 5.3 Purchasing 5.4 Evacuation 5.5 Hazardous substance containment 5.6 Operational instruction 5.7 Environmental information including incident and management practices 5.8 Specific hazardous materials policies and procedures 5.9 Risk assessment and control 5.10 First aid
6 Personal protective equipment (PPE)	PPE may include: 6.1 Gloves 6.2 Safety headwear and footwear 6.3 Safety glasses 6.4 Two-way radios 6.5 High visibility clothing

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Identified and monitored environmental hazards in the workplace 1.2 Implemented effective procedures for dealing with hazardous events 1.3 Monitored workplace adherence to environmental practices 1.4 Communicated effectively with the team members
2. Resource implications	The following resources should be provided: 2.1 Environmental protection regulations and guidelines 2.2 OHS regulations and hazard prevention policies and procedures 2.3 workplace environmental protection policies, procedures and instructions 2.4 equipment/vehicle manufacturer's operating and servicing instructions
3. Methods of assessment	Competency in this unit may be assessed through: 3.1 Direct observation 3.2 Oral or written questioning 3.3 Questions/interview Assessment of underpinning knowledge and practical skills may be combined
4. Context of assessment	4.1 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines 4.2 Assessment may be conducted in the workplace or a simulated environment

UNIT OF COMPETENCY: OBSERVE PROCEDURES, SPECIFICATIONS AND MANUALS OF INSTRUCTIONS

UNIT CODE : UTL311201

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes on identifying, interpreting, applying services to specifications and manuals and storing manuals.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify and access specification/ manuals	1.1 Appropriate manuals are identified and accessed as per job requirements 1.2 Version and date of manual are checked to ensure that correct specification and procedures are identified	1.1 Types of manuals used in transmission lines (T/L) 1.2 Identification of symbols used in the manuals	1.1 Reading and comprehension skills 1.2 Identifying and interpreting T/L manuals and specifications 1.3 Accessing information and data
2. Interpret manuals	2.1 Relevant sections, chapters of specifications/ manuals are located in relation to the work to be conducted 2.2 Information and procedure in the manual are interpreted in accordance with industry practices	2.1 Types of manuals used in transmission lines (T/L) 2.2 Types of symbols used in manuals 2.3 Identification of units of measurements 2.4 Unit conversion	2.1 Reading and comprehension skills 2.2 Identifying and interpreting T/L manuals and specifications 2.3 Accessing information and data 2.4 Applying conversion of units of measurements
3. Apply information in manual	3.1 ***Manual*** is interpreted according to job requirements 3.2 Work steps are correctly identified in accordance with manufacturer's specification 3.3 Manual data are applied according to the given task 3.4 All correct sequencing and adjustments are interpreted in accordance with information contained on the manual or specifications	3.1 Types of manuals used in transmission lines (T/L) 3.2 Types and application of symbols used in the manuals 3.3 Unit conversion	3.1 Reading and comprehension skills 3.2 Applying information from manuals
4. Store manuals	4.1 Manual or specification is stored appropriately to prevent damage, ready access and updating of information when required in accordance with company requirements	4.1 Types of manuals used in transmission lines (T/L) 4.2 Manual storing and maintaining procedures	4.1 Reading and comprehension skills 4.2 Storing and maintaining manuals

RANGE OF VARIABLES

VARIABLE	RANGE
1. Procedures, Specifications and Manuals of Instructions	Kinds of Manuals: 1.1 Manufacturer's Specification Manual 1.2 Repair Manual 1.3 Maintenance Procedure Manual 1.4 Periodic Maintenance Manual

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Identified and accessed specification/manuals as per job requirements 1.2 Interpreted manuals in accordance with industry practices 1.3 Applied information in manuals according to the given task 1.4 Stored manuals in accordance with company requirements
2. Resource implications	The following resources should be provided: 2.1 All manuals/catalogues relative to construction sector
3. Methods of assessment	Competency in this unit may be assessed through: 3.1 Direct observation 3.2 Questions/interview Assessment of underpinning knowledge and practical skills may be combined
4. Context of assessment	4.1 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines 4.2 Assessment may be conducted in the workplace or a simulated environment

UNIT OF COMPETENCY : OPERATE AND MAINTAIN LINE TOOLS AND EQUIPMENT

UNIT CODE : UTL311205

DESCRIPTOR : This unit covers the knowledge, skills and attitude to operate and maintain transmission line tools and equipment. This unit will involve working in a team environment.

ELEMENT	PERFORMANCE CRITERIA (***Italicized Bold*** terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan and prepare for work	1.1. Work instruction is secured and interpreted according to ***job requirements*** 1.2. Relevant ***occupational health and safety requirements*** are identified following job specifications 1.3. Relevant transmission line ***tools, equipment and hardware*** are identified and requested in accordance with job specifications	1.1. Relevant occupational health and safety standards 1.2. Types and usage of transmission line tools and equipment 1.3. Basic preventive maintenance servicing for transmission line equipment	1.1. Following and complying occupational health and safety standards 1.2. Following procedures for the safe use of transmission line tools and equipment 1.3. Performing basic preventive maintenance servicing for transmission line equipment
2. Prepare transmission line tools and equipment	2.1. Personal protective equipment (PPE) are obtained following job requirements 2.2. Transmission line tools, equipment and hardware are acquired and secured in line with job requirements 2.3. Transmission hot line tools are tested/set following manufacturer's standards or recommendation	2.1. Types and functions of PPEs 2.2. Types and usage of transmission line tools and equipment 2.3. Basic preventive maintenance servicing for transmission line equipment 2.4. Proper testing of transmission hot line tools	2.1. Following and complying occupational health and safety standards 2.2. Following procedures for the safe use of transmission line tools and equipment 2.3. Performing basic preventive maintenance servicing for transmission line equipment 2.4. Testing skills
3. Operate transmission line tools and equipment	3.1. PPE are used in line with job requirements 3.2. Transmission line tools and equipment are used in line with job requirements	3.1. Proper usage of PPEs 3.2. Proper procedure for the use of transmission	3.1. Using PPEs 3.2. Following procedures for the safe use of transmission line tools and equipment

ELEMENT	PERFORMANCE CRITERIA (***Italicized Bold*** terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		line tools and equipment 3.3. Basic preventive maintenance servicing for transmission line equipment	3.3. Performing basic preventive maintenance servicing for transmission line equipment
4. Check condition of transmission line tools and equipment	4.1. Transmission line tools and equipment are identified according to classification and job requirements 4.2. Non-functional transmission line tools and equipment are segregated and labeled according to classification 4.3. Safety of transmission line tools and equipment are observed in accordance with manufacturer's instructions 4.4. Condition of PPE are checked in accordance with manufacturer's instructions	4.1. Classification of transmission line tools and equipment 4.2. Proper safety procedure for the use of transmission line tools and equipment 4.3. Basic preventive maintenance servicing for transmission line equipment	4.1. Classifying transmission line tools and equipment 4.2. Following and complying occupational health and safety standards 4.3. Following procedures for the safe use of transmission line tools and equipment 4.4. Performing basic preventive maintenance servicing for transmission line equipment
5. Perform basic preventive maintenance	5.1. Appropriate lubricants are identified according to types of equipment 5.2. Equipment are lubricated according to preventive maintenance schedule or manufacturer's specifications 5.3. Transmission line tools are cleaned and tested according to standard procedures 5.4. Transmission line tools and equipment are inspected, and repaired and replaced, if necessary, after use 5.5. Work place is cleaned and kept in safe state in line with OHSA regulations	5.1. Types and usage of lubricants for transmission line equipment 5.2. Proper procedure for the use and maintenance of transmission line tools and equipment 5.3. Basic preventive maintenance servicing for transmission line equipment	5.1. Identifying types and usage of lubricants 5.2. Following procedures for the safe use and maintenance of transmission line tools and equipment 5.3. Performing basic preventive maintenance servicing for transmission line equipment 5.4. Following OHSA regulations

ELEMENT	PERFORMANCE CRITERIA (***Italicized Bold*** terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		5.4. Applicable OHSA regulations in preventive maintenance	
6. Store tools and equipment	6.1. Inventory of transmission line tools and equipment are conducted and recorded as per company practices 6.2. Transmission line tools and equipment are stored safely in appropriate locations in accordance with manufacturer's specifications or company procedures	6.1. Proper procedure for the inventory and storage of transmission line tools and equipment	6.1. Following procedures for the inventory and storage of transmission line tools and equipment 6.2. Inventory skills 6.3. Proper storage and handling skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Job requirements	1.1. Erect pole 1.2. Perform overhead transmission line work 1.3. Perform cold-line maintenance work 1.4. Perform ground line maintenance work
2. Occupational health and safety requirements	May include but not limited to: 2.1. Personal protective equipment (PPE) 2.1.1. Safety hat 2.1.2. Safety goggles 2.1.3. Safety gloves 2.1.4. Safety shoes 2.1.5. Working clothes 2.2. Installation of grounding cluster
3. Transmission line tools, equipment and hardware	May include but not limited to: 3.1. Hand tools 3.1.1. Pliers 3.1.2. Screwdrivers 3.1.3. Adjustable wrenches 3.1.4. Ball peen hammer 3.1.5. Auger bit 3.1.6. Hacksaw/cutting tools 3.1.7. Steel tape 3.2. Equipment 3.2.1. Motorized capstan 3.2.2. Climbing gears 3.2.3. Line truck/Boom truck 3.3. Set of hot line trailer 3.4. Hardware 3.4.1. Insulator 3.4.2. Machine bolts 3.4.3. Suspension clamp assembly (ACSR/OHGW) 3.4.4. Strain clamp assembly(ACSR/OHGW) 3.4.5. Overhead ground wires 3.4.6. Cross-arms and braces 3.4.7. Conductors and accessories

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1. Demonstrates ability to identify and comply with occupational health and safety standards in operating and maintaining transmission line tools and equipment 1.2. Demonstrates ability to identify and safely use transmission tools and equipment 1.3. Demonstrates ability to perform basic preventive maintenance servicing for transmission line equipment
2. Resource Implications	The following resources should be provided: 2.1. Transmission line tools, equipment and PPE 2.2. Work area
3. Method of assessment	Competency in this unit may be assessed through: 3.1. Observation and Oral questioning 3.2. Demonstration with oral questioning 3.3. Written test
4. Context of assessment	4.1. Competency may be assessed in the workplace or in a simulated workplace setting 4.2. Assessment shall be undertaken either individually or part of team under limited supervision

UNIT TITLE : PERFORM COMPUTER OPERATIONS
UNIT CODE : UTL311207

UNIT DESCRIPTOR : This unit covers the knowledge, skills, (and) attitudes and values needed to perform computer operations which include inputting, accessing, producing and transferring data using the appropriate hardware and software

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan and prepare for task to be undertaken	1.1. Requirements of task are determined 1.2. Appropriate ***hardware*** and ***software*** are selected according to task assigned and required outcome 1.3. Task is planned to ensure ***OH&S guidelines*** and procedures are followed	1.1. Main types of computers and basic features of different operating systems 1.2. Main parts of a computer 1.3. Information on hardware and software 1.4. Data security guidelines	1.1. Reading and comprehension skills required to interpret work instruction and to interpret basic user manuals. 1.2. Communication skills to identify lines of communication, request advice, follow instructions and receive feedback. 1.3. Interpreting user manuals and security guidelines
2. Input data into computer	2.1. Data are entered into the computer using appropriate program/application in accordance with company procedures 2.2. Accuracy of information is checked and information is saved in accordance with standard operating procedures 2.3. Inputted data are stored in ***storage media*** according to requirements 2.4. Work is performed within ***ergonomic guidelines***	2.1. Basic ergonomics of keyboard and computer user 2.2. Storage devices and basic categories of memory 2.3. Relevant types of software	2.1. Technology skills to use equipment safely including keyboard skills. 2.2. Entering data
3. Access information using computer / smartphone	3.1. Correct program/application is selected based on job requirements 3.2. Program/application containing the information required is accessed according to company procedures 3.3. ***Desktop icons*** are correctly selected, opened	3.1. General security, privacy legislation and copyright 3.2. Productivity Application 3.3. Business Application	3.1. Accessing information 3.2. Searching and browsing files and data

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	and closed for navigation purposes 3.4. Keyboard techniques are carried out in line with OH&S requirements for safe use of keyboards		
4. Produce/ output data using computer system	4.1. Entered data are processed using appropriate software commands 4.2. Data printed out as required using computer hardware/peripheral devices in accordance with standard operating procedures 4.3. Files, data are transferred between compatible systems using computer software, hardware/ peripheral devices in accordance with standard operating procedures	4.1. Computer application in printing, scanning and sending facsimile 4.2. Types and function of computer peripheral devices	4.1. Computer data processing 4.2. Printing of data 4.3. Transferring files and data
5. Maintain computer equipment and systems	5.1. Systems for cleaning, minor ***maintenance*** and replacement of consumables are implemented 5.2. Procedures for ensuring security of data, including regular back-ups and virus checks are implemented in accordance with standard operating procedures 5.3. Basic file maintenance procedures are implemented in line with the standard operating procedures	5.1. Basic internet operation 5.1.1. Web address 5.1.2. Types and functions of search engines 5.2. Different web browser security features and maintenance	5.1. Locating information using browser 5.2. Internet browsing

RANGE OF VARIABLES

VARIABLE	RANGE
1. Hardware and peripheral devices	May include: 1.1. Personal computers 1.2. Networked systems 1.3. Communication equipment 1.4. Printers 1.5. Scanners 1.6. Keyboard 1.7. Mouse
2. Software	Software includes the following but not limited to: 2.1. Word processing packages 2.2. Data base packages 2.3. Internet 2.4. Spreadsheets
3. OH & S guidelines	3.1. OHS guidelines 3.2. Enterprise procedures
4. Storage media	Storage media include the following but not limited to: 4.1. CDs 4.2. zip disks 4.3. hard disk drives, local and remote 4.4. cloud storage
5. Ergonomic guidelines	May include: 5.1. Types of equipment used 5.2. Appropriate furniture 5.3. Seating posture 5.4. Lifting posture 5.5. Visual display unit screen brightness
6. Desktop icons	Icons include the following but not limited to: 6.1. directories/folders 6.2. files 6.3. network devices 6.4. recycle bin
7. Maintenance	May include: 7.1. Creating more space in the hard disk 7.2. Reviewing programs 7.3. Deleting unwanted files 7.4. Backing up files 7.5. Checking hard drive for errors 7.6. Using up to date anti-virus programs 7.7. Cleaning dust from internal and external surfaces

EVIDENCE GUIDE

1. Critical aspect of competency	Assessment requires evidence that the candidate: 1.1. Selected and used hardware components correctly and according to the task requirement 1.2. Identified and explain the functions of both hardware and software used, their general features and capabilities 1.3. Produced accurate and complete data in accordance with the requirements 1.4. Used appropriate devices and procedures to transfer files/data accurately 1.5. Maintained computer system
2. Resource implication	The following resources should be provided: 2.1. Computer hardware with peripherals 2.2. Appropriate software
3. Method of assessment	Competency in this unit may be assessed through: 3.1. Observation 3.2. Questioning 3.3. Practical demonstration
4. Context of Assessment	4.1. Assessment may be conducted in the workplace or in a simulated work environment

CORE COMPETENCIES

UNIT OF COMPETENCY : INSPECT TRANSMISSION LINE, POLES, TOWERS AND APPURTENANCES

UNIT CODE : UTL741301

DESCRIPTOR : This unit covers the knowledge, skills and attitude required to inspect transmission line, poles, towers and appurtenances on 69kv and below. This unit includes competencies planning and preparing for work, preparing tools and equipment and conducting inspection for transmission line.

ELEMENT	PERFORMANCE CRITERIA (*Italicized Bold* terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan and prepare for work	1.1 Work instruction is secured and interpreted according to ***job requirements*** 1.2 Relevant ***occupational health and safety requirements*** are identified following job specifications 1.3 Appropriate ***tools and equipment*** are identified and requested in accordance with job specifications	1.1. Usage of appropriate PPE's 1.2. Usage and function of tools and equipment 1.3. Basic Math (MDAS) 1.4. Written and oral communication 1.5. DOLE-OSHS Rule 1212 – Electrical Safety Inspection	1.1. Communication skills 1.2. Interpretation skills 1.3. Mathematical skills
2. Prepare tools and equipment	2.1 Personal protective equipment (PPE) are obtained following job requirements 2.2 Transmission line tools and equipment are acquired and secured in line with job requirements 2.3 Tools and equipment operational conditions are checked based on tools and equipment manual	2.1 DOLE-OSHS Rule 1080 – Personal Protective Equipment and Devices 2.2 Usage and function of tools and equipment 2.3 Basic Math (MDAS) 2.4 Written and oral communication	2.1 Communication skills 2.2 Interpretation skills 2.3 Mathematical skills
3. Conduct transmission line inspection	3.1 Transmission line tools and equipment are used in line with job requirements 3.2 Personal protective equipment (PPE) are used following job requirements 3.3 Structure and appurtenances are inspected based on ***transmission line inspection procedures***.	3.1 Usage of appropriate PPE's 3.2 Usage and function of tools, hardware and equipment 3.3 Structure Design specification	3.1 Communication skills 3.2 Interpretation skills 3.3 Mathematical skills 3.4 Climbing skills 3.5 Skills in identifying defects

ELEMENT	PERFORMANCE CRITERIA (***Italicized Bold*** terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.4 Illegal structures and vegetation within and beyond right of way (ROW) corridor are inspected based on transmission line inspection procedure 3.5 Line to Ground and line to line clearances are inspected based on transmission line inspection standards 3.6 Pole/tower and vegetation inspection checklist is filled up and submitted to T/L foreman in accordance with company procedures	3.4 Operation in height measuring equipment 3.5 Company Vegetation Management 3.6 DOLE-OSHS Rule 1212 – Electrical Safety Inspection 3.7 Transmission Line Inspection Procedure 3.8 Arboriculture 3.9 Basic Math (MDAS) 3.10 Written and Oral Communication 3.11 Local/City ordinances regarding ROW	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Job requirements	May include but not limited to: 1.1. Inspection of structures and appurtenances 1.2. Inspection of illegal structures and vegetation within and beyond ROW corridor 1.3. Inspection of line to line clearance 1.4. Inspection of line to ground clearance
2. Occupational health and safety requirements	May include but not limited to: 2.1. Personal protective equipment (PPE) 2.1.1. Safety hat 2.1.2. Safety goggles 2.1.3. Safety gloves 2.1.4. Safety shoes 2.1.5. working clothes 2.2. Safety tools 2.2.1. Safety harness/strap 2.3. Company health and safety policies and procedures 2.4. DOLE-OSHS Rules 1210 – Electrical Safety 2.5. OHSAS 18001 – Occupational Health and Safety Management System 2.6. Philippine Grid Code
3. Transmission line tools and equipment	May include but not limited to: 3.1. Tools 3.1.1. Pliers 3.1.2. Screwdrivers 3.1.3. Adjustable wrenches 3.1.4. Ball peen hammer 3.1.5. Inspection checklist with ball pen 3.1.6. Steel tape 3.1.7. Bolo 3.1.8. Binocular 3.2. Equipment 3.2.1 Cable height meter 3.2.2 Climbing gears 3.2.3 Range Finder 3.2.4 Digital Camera
4. Transmission line inspection standards	May include: 4.1. Safe procedure for line inspection 4.2. Inspection procedure to include the following: 4.2.1. Structure and appurtenances defects 4.2.2. Vegetation encroachment 4.2.3. Illegal structures 4.2.4. Line to line clearance 4.2.5. Line to ground clearance

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1. Planned and prepared for work 1.2. Prepared tools and equipment 1.3. Performed inspection transmission line structures and appurtenances 1.4. Performed inspection of illegal structures and vegetation within and beyond ROW corridor 1.5. Performed inspection line to line and line to ground clearances 1.6. Filled up inspection checklist
2. Resource implications	The following resources should be provided: 2.1. Transmission line tools and equipment 2.2. Safety tools and PPEs 2.3. Work area
3. Method of assessment	Competency in this unit may be assessed through: 3.1. Demonstration with oral questioning 3.2. Written test
4. Context of assessment	4.1. Competency may be assessed in the workplace or in a simulated workplace setting 4.2. Assessment shall be undertaken either individually or part of team under limited supervision

UNIT OF COMPETENCY : PERFORM GROUND TRANSMISSION LINE WORKS

UNIT CODE : UTL741302

DESCRIPTOR : This unit covers the knowledge, skills and attitude required to perform ground line maintenance work on *69kv and below*. This unit also includes working in a team environment.

ELEMENT	PERFORMANCE CRITERIA (***Italicized Bold*** terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan and prepare for ground work	1.1. Work instruction is secured and interpreted according to ***job requirements*** 1.2. Relevant ***occupational health and safety requirements*** are identified following job specifications 1.3. Appropriate ***tools, equipment and hardware*** are identified and requested in accordance with job specifications	1.1. Usage and functions of appropriate tools, equipment and hardware. 1.2. Design and specification of T/L structures 1.3. OSH requirements 1.4. Basic Math (MDAS) 1.5. Written and oral communication	1.1. Communication skills 1.2. Interpretation skills 1.3. Mathematical skills 1.4. Skills in identifying T/L hardware, tools and equipment
2. Prepare hardware, tools and equipment for ground work	2.1. Personal protective equipment (PPE) are obtained following job requirements 2.2. Appropriate tools, equipment and hardware are acquired and secured in line with job requirements 2.3. Operational condition of transmission line tools and equipment are checked in accordance with its corresponding manual	2.1. Usage of appropriate PPE 2.2. Usage and functions of appropriate materials, tools and equipment 2.3. OSH requirement 2.4. Basic Math (MDAS) 2.5. Written and oral communication	2.1. Communication skills 2.2. Interpretation skills 2.3. Mathematical skills 2.4. Skills in identifying T/L hardware, tools and equipment
3. Conduct ground line maintenance work/ procedure	3.1. Transmission line tools, equipment and hardware are used in line with job requirements 3.2. Personal protective equipment (PPE) are used following job requirements 3.3. ***Ground line maintenance work/procedure*** is performed following job requirements. 3.4. Housekeeping procedure is performed in line with power industry procedure	3.1. Proper usage of appropriate PPE's 3.2. Proper usage of hand tools, hardware and equipment 3.3. Company Transmission Line Vegetation Management 3.4. Hauling and dragging techniques 3.5. Rigging technique 3.6. Design and specification of the pole structures	3.1. Communication skills 3.2. Interpretation skills 3.3. Mathematical skills 3.4. Rigging skills 3.5. Skills in proper excavation of pole and anchor holes 3.6. Hauling and dragging skills 3.7. Skills in cutting, trimming and pruning of trees

ELEMENT	PERFORMANCE CRITERIA (***Italicized Bold*** terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		3.7. Excavation procedure as per company standards 3.8. Soil bearing capacity 3.9. Basic Math (MDAS) o Depth of hole o Diameter of pole hole 3.10. Written, Oral and hand signal communication 3.11. Two-way radio communication 3.12. DENR regulations and permits for: o Cutting, trimming, pruning of trees o Application of tree growth retardant 3.13. Philippine Coconut Authority - permit for cutting of coconut. 3.14. DOLE-OSHS Rule 1410 – Construction Safety o Excavation o Construction Equipment o Plant and Equipment 3.15. DOLE-OSHS Rule 1420 – Logging o Use and Maintenance of Power Saw o Lines, Blocks, Rigging 3.16. Clean Air Act 3.17. 5s and 3Rs principles	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Job requirements	May include but not limited to: 1.1 Replacement of rusty and corroded guy wires 1.2 Replacement of pilfered guy wires and anchor rod and attachments 1.3 Replacement and repair of structural ground 1.4 Correction of pole alignment 1.5 Cutting of obstructive vegetation 1.6 Re-tensioning of loosed guy wires 1.7 Reinforced structure's stability of slope protection 1.8 Loading of steel poles 1.9 Transport and dragging of steel poles to job site 1.10 Perform pole staking and excavation 1.11 Payout of ACSR and OHGW
2. Occupational health and safety requirements	May include but not limited to: 2.1 Personal protective equipment (PPE) 2.1.1 Safety hat 2.1.2 Safety goggles 2.1.3 Safety gloves 2.1.4 Safety shoes 2.2 Safety tools 2.1.5 Safety harness/strap 2.2 Company health and safety policies and procedures 2.3 DOLE-OSHS Rule 1080 – Personal Protective Equipment and Devices 2.4 DOLE-OSHS Rule 1410 – Construction Safety 2.5 DOLE-OSHS Rule 1420 – Logging 2.6 OHSAS 18001 – Occupational Health and Safety Management System 2.7 Philippine Grid Code
3. Transmission line tools, equipment and hardware	May include but not limited to: 3.1 Hand tools 3.1.1 Pliers 3.1.2 Screwdrivers 3.1.3 Adjustable wrenches 3.1.4 Ball peen hammer 3.1.5 Hacksaw/cutting tools 3.1.6 Bolo, axe 3.1.7 straight shovel 3.1.8 Spoon shovel 3.1.9 Digging bar 3.1.10 spade shovel 3.2 Equipment 3.2.1 Ratchet hoist 3.2.2 Cum-along or wire grip 3.2.2 Climbing gears/ladder 3.2.3 Rope 3.2.4 Line truck

VARIABLE	RANGE
	3.2.5 Chainsaw 3.2.6 Block and tackle 3.2.7 Snatch block 3.2.8 Slings 3.2.9 Trailer 3.2.10 Pole Adaptor 3.2.11 Hydraulic bolt cutter 3.3.12 3.3 Hardware 3.4.1 Guy wire 3.4.2 Anchor rod/anchor screw 3.4.3 Three bolts clamp/preformed guy grip 3.4.4 Anchor log
4. Ground line maintenance work/procedure	May include work/procedure in: 4.1 Pruning/cutting/trimming of trees 4.2 Re-tightening of guy wires 4.3 Replacement of pilfered hardware 4.4 Hauling of materials and hardware 4.5 Dragging of poles 4.6 Excavation works 4.7 Rigging works

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1. Planned and prepared for work 1.2. Prepared T/L hardware, tools and equipment 1.3. Performed ground line maintenance work/procedure
2. Resource Implications	The following resources must be available: 2.1. Transmission line tools, equipment and hardware 2.2. Safety tools and PPEs 2.3. Work area 2.4. Line truck
3. Method of assessment	3.1. Demonstration with oral questioning 3.2. Written test
4. Context of assessment	4.1. Competency may be assessed in the workplace or in a simulated workplace setting 4.2. Assessment shall be undertaken either individually or part of team under limited supervision

UNIT OF COMPETENCY : PERFORM OVERHEAD MAINTENANCE WORKS

UNIT CODE : UTL741303

DESCRIPTOR : This unit covers the outcomes required for performing maintenance of overhead transmission line. This involves working with a team. The scope of this unit covers replacement of damaged/defective transmission line components on *69 KV and below*.

ELEMENT	PERFORMANCE CRITERIA (***Italicized Bold*** terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan and prepare for overhead maintenance work	1.1. Work instruction is secured and interpreted according to ***job requirements*** 1.2. Relevant ***occupational health and safety requirements*** are identified following job specifications 1.3. Appropriate ***tools, equipment and hardware*** are identified and requested in accordance with job specifications	1.1. Usage and functions of appropriate tools, equipment and hardware. 1.2. Design and specification of T/L structures 1.3. OSH requirements 1.4. Basic Math (MDAS) 1.5. Written and oral communication	1.1. Communication skills 1.2. Interpretation skills 1.3. Mathematical skills 1.4. Skills in identifying T/L hardware, tools and equipment
2. Prepare hardware, transmission line tools and equipment for overhead maintenance	2.1 ***Personal protective equipment (PPE)*** are obtained following job requirements 2.2 Appropriate tools, equipment and hardware are acquired and secured in line with job requirements 2.3 Operational condition of transmission line tools and equipment are checked in accordance with its corresponding manual	2.1 Usage of appropriate PPE 2.2 Usage and functions of appropriate materials, tools and equipment 2.3 OSH requirement 2.4 Basic Math (MDAs) 2.5 Written and oral communication	2.1 Communication skills 2.2 Interpretation skills 2.3 Mathematical skills 2.4 Skills in identifying T/L hardware, tools and equipment
3. Conduct overhead maintenance works	3.1. Transmission line tools, equipment and hardware are used in line with job requirements 3.2. Personal protective equipment (PPE) are used following job requirements 3.3. Confirmation to proceed to work is secured from appropriate personnel in accordance with company/ industry procedure. 3.4. ***Pole climbing activities*** are performed in line with occupational health and safety standards.	3.1. DOLE-OSHS Rule 1080 – Personal Protective Equipment and Devices E 3.2. Usage and functions of appropriate materials, tools and equipment 3.3. Pole setting methods 3.4. Rigging technique	3.1. Communication skills 3.2. Interpretation skills 3.3. Mathematical skills 3.4. Rigging skills 3.5. Climbing skills 3.6. Skills in pole erection 3.7. Basic Lineman Skills

ELEMENT	PERFORMANCE CRITERIA (***Italicized Bold*** terms are elaborated in the range of variables)	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.5. Line voltage detection is performed based on operational manual and company procedures. 3.6. Grounding clusters are installed based on power industry safety practices 3.7. ***Overhead line maintenance work activities*** are performed according to job specifications 3.8. Housekeeping procedure is performed in line with power industry procedure	3.5. Pole erection technique 3.6. Pole climbing techniques 3.7. Structural Design and Specification 3.8. Armoring method 3.9. Load Principle 3.10. Simple Machine Principle 3.11. Basic Electricity principle 3.12. Basic Math (MDAS) 3.13. Safe working load 3.14. Written, oral and hand signal communication 3.15. Two-way radio communication 3.16. DOLE-OSHS Rule 1080 – Personal Protective Equipment and Devices 3.17. DOLE-OSHS Rule 1210 – Electrical Safety 3.18. DOLE-OSHS Rule 1428 - Lines, Blocks, Rigging 3.19. Clean Air Act 3.20. 5s and 3Rs principles	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Job requirements	May include but not limited to: 1.1 Pole setting 1.2 Installation of guys 1.3 Pole dressing 1.4 Conductor/overhead(OHGW) stringing 1.5 Conductor/overhead(OHGW) transfer/repair 1.6 Retirement of old cross arm/ poles and appurtenances
2. Occupational health and safety requirements	May include but not limited to: 2.1 Personal protective equipment (PPE) 2.1.1 Safety hat 2.1.2 Safety goggles 2.1.3 Safety gloves 2.1.4 Safety shoes 2.1.5 working clothes 2.2 Safety tools 2.2.1 Safety harness 2.2.2 Fall arrest 2.2.3 Climber set 2.3 Voltage detection of de-energized line (with voltage detector) 2.4 Installation of grounding clusters 2.5 DOLE-OSHS Rule 1210 – Electrical Safety 2.6 DOLE-OSHS Rule 1428 - Lines, Blocks, Rigging 2.7 OHSAS 18001 – Occupational Health and Safety Management System 2.8 Philippine Grid Code
3. Transmission line tools, equipment and hardware	May include but not limited to: 3.1 Tools 3.1.1 Pliers 3.1.2 Screwdrivers 3.1.3 Adjustable wrenches 3.1.4 Ball peen hammer 3.1.5 Auger bit 3.1.6 Hacksaw/cutting tools 3.1.7 Socket wrench 3..1.8 Webbing sling 3.2 Equipment 3.2.1 Ratchet hoist 3.2.2 Capstan/Hand winch/Cable Puller 3.2.3 Block and tackle 3.2.4 Compression tool 3.2.5 Snatch block 3.2.6 Climbing gears 3.2.7 Hydraulic bolt cutter 3.2.8 Line truck/Boom truck 3.2.9 Rope

VARIABLE	RANGE
	3.2.10 Wire basket with swivel 3.2.11 Voltage detector 3.3 Hardware 3.3.1 Insulator 3.3.2 Machine bolts 3.3.3 Suspension clamps 3.3.4 Strain clamp 3.3.5 Overhead ground wires and accessories 3.3.6 Cross-arms and braces 3.3.7 Conductors and accessories 3.3.8 Guy wires 3.3.9 Oval eyebolt 3.3.11 Double arming bolt 3.3.12 Double arming plate 3.3.13 Anchor/twisted shackle 3.3.14 Angle support 3.3.15 X brace and fittings 3.3.16 Thimble eyebolt
4. Pole climbing activities	May include but not limited to: 4.1 pole climbing 4.2 pole inspection 4.3 inspection of surrounding 4.4 wearing of PPEs and climbing gears
5. Overhead line maintenance work activities	Overhead line maintenance work activities may include: 5.1 Pole Setting 5.1.1 Erection, 5.1.2 Pole facing 5.2 Conductor/overhead(OHGW) stringing 5.3 Conductor/overhead(OHGW) final sagging and clipping 5.4 Armoring 5.5 Installation of vibration damper 5.6 Replacement/ installation of Guys and anchors 5.7 Pole dressing 5.7.1 Cross-arm and appurtenances 5.7.2 Insulators and appurtenances 5.8 Replacement of rotten pole and cross- arm 5.9 Replacement of defective/missing tower lattices 5.10 Replacement of damaged/corroded insulators. 5.11 Replacement of damaged Conductor, OHGW and appurtenances 5.11.1 Conductor splicing 5.11.2 Armoring/Vibration damper 5.12 Installation of repair sleeve

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1. Planned and prepared for work 1.2. Prepared T/L hardware, tools and equipment 1.3. Performed pole climbing activities 1.4. Performed line voltage detection 1.5. Installed grounding clusters 1.6. Conducted overhead maintenance work activities
2. Resource implications	The following resources must be available: 2.1 Transmission line tools, equipment and hardware 2.2 Safety tools and PPEs 2.3 Work area 2.4 Line truck
3. Method of assessment	Competency in this unit may be assessed through: 3.1. Demonstration with oral questioning 3.2. Written test
4. Context of assessment	4.1. Competency maybe assessed in the workplace or in a simulated workplace setting 4.2. Assessment shall be undertaken either individually or part of team under limited supervision

SECTION 3. TRAINING ARRANGEMENTS

This set of standards provides Technical and Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for Transmission Line Installation and Maintenance NC II.

This includes information on curriculum design; training delivery; trainee entry requirements; tools and equipment; training facilities; and trainer's qualification and institutional assessment.

3.1 CURRICULUM DESIGN

TESDA shall provide the training on the development of competency-based curricula to enable training providers develop their own curricula with the components mentioned below.

Delivery of knowledge requirements for the basic, common and core units of competency specifically in the areas of mathematics, science/technology, communication/language and other academic subjects shall be contextualized. To this end, TVET providers shall develop a Contextual Learning Matrix (CLM) to accompany their curricula.

Course Title: Transmission Line Installation and Maintenance **NC Level:** NC II

Nominal Training Duration:

24 hrs – Basic Competencies
60 hrs – Common Competencies
240 hrs – Core Competencies
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324 hrs

Course Description:

This course is designed to develop & enhance the knowledge, skills, & attitudes of a transmission lineman, in accordance with industry standards. It covers the basic & common competencies in addition to the core competencies such inspection of transmission line structures or towers and appurtenances, performance of ground transmission line works and performance of overhead maintenance works on 69 KV and below

To obtain this, all units prescribed for this qualification must be achieved:

BASIC COMPETENCIES

(24 hours)

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
1. Participate in workplace communication	1.1. Obtain and convey workplace information	1.1.1. Describe Organizational policies 1.1.2. Read: o Effective communication o Written communication o Communication procedures and systems 1.1.3. Identify: o Different modes of communication o Medium of communication o Flow of communication o Available technology relevant to the enterprise and the individual's work responsibilities 1.1.4. Prepare different Types of question 1.1.5. Gather different sources of information 1.1.6. Apply storage system in establishing workplace information 1.1.7. Demonstrate Telephone courtesy	1.1.1. Group discussion 1.1.2. Lecture 1.1.3. Demonstration	1.1.1. Oral evaluation 1.1.2. Written examination 1.1.3. Observation	2 hours
	1.2. Complete relevant work related documents	1.2.1. Describe Communication procedures and systems 1.2.2. Read: o Meeting protocols o Nature of workplace meetings o Workplace interactions o Barriers of communication 1.2.3. Read instructions on work related forms/documents 1.2.4. Practice: o Estimate, calculate and record routine workplace measures o Basic mathematical processes of addition, subtraction, division and multiplication	1.2.1. Group discussion 1.2.2. Lecture 1.2.3. Demonstration 1.2.4. Role play	1.2.1. Oral evaluation 1.2.2. Written examination 1.2.3. Observation	2 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		1.2.5. Demonstrate office activities in: o workplace meetings and discussions scenario 1.2.6. Perform workplace duties scenario following simple written notices 1.2.7. Follow simple spoken language 1.2.8. Identify the different Non-verbal communication 1.2.9. Demonstrate ability to relate to people of social range in the workplace 1.2.10. Gather and provide information in response to workplace requirements 1.2.11. Complete work related documents			
	1.3. Participate in workplace meeting and discussion	1.3.1. Identify: o types of workplace documents and forms o kinds of workplace report o Available technology relevant to the enterprise and the individual's work responsibilities 1.3.2. Read and follow instructions in applying basic mathematical concepts 1.3.3. Follow simple spoken language 1.3.4. Demonstrate ability to relate to people of social range in the workplace 1.3.5. Gather and provide information in response to workplace requirements	1.3.1. Lecture 1.3.2. Demonstration	1.3.1. Written examination 1.3.2. Observation	2 hours
2. Work in a team environment	2.1. Describe and identify team role and responsibility in a team.	2.1.1. Describe the team role and scope 2.1.2. Read o Definition of Team o Difference between team and group o Objectives and goals of team 2.1.3. Identify different sources of information	2.1.1. Group discussion 2.1.2. Lecture	2.1.1. Oral evaluation 2.1.2. Written examination	2 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	2.2. Describe work as a team	2.2.1. Describe team goals and objectives 2.2.2. Perform exercises in setting team goals and expectations scenario 2.2.3. Identify: o individual role and responsibility 2.2.4. Practice Interacting effectively with others 2.2.5. Read: o Fundamental rights at work including gender sensitivity o Understanding individual competencies relative to teamwork o Types of individuals o Role of leaders	2.2.1. Group discussion 2.2.2. Role play 2.2.3. Lecture	2.2.1. Oral evaluation 2.2.2. Observation 2.2.3. Written examination	2 hours
3. Practice career professionalism	3.1. Integrate personal objectives with organizational goals	3.1.1. Describe performance evaluation 3.1.2. Read: o Work values and ethics (Code of Conduct, Code of Ethics, etc.) o Understanding personal objectives o Understanding organizational goals 3.1.3. Demonstrate Intra and Interpersonal skills at work 3.1.4. Demonstrate personal commitment in work	3.1.1. Group discussion 3.1.2. Lecture 3.1.3. Demonstration	3.1.1. Oral evaluation 3.1.2. Written examination 3.1.3. Observation	2 hours
	3.2. Set and meet work priorities	3.2.1. Describe company policies, operations, procedures and standards 3.2.2. Read: o Time Management o Basic strategic planning concepts o Resource utilization and management 3.2.3. Apply managing goals and time 3.2.4. Practice: o economic use of resources and facilities o time management	3.2.1. Group discussion 3.2.2. Lecture 3.2.3. Demonstration	3.2.1. Oral evaluation 3.2.2. Written examination 3.2.3. Observation	2 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	3.3. Maintain professional growth and development	3.3.1. Describe company recognition and incentives 3.3.2. Read: o Career development opportunities o Information on relevant licenses and or certifications o personal career development needs 3.3.3. Identify career opportunities 3.3.4. Determine personal career development needs	3.3.1. Group discussion 3.3.2. Lecture	3.3.1. Oral evaluation 3.3.2. Written examination	2 hours
3. Practice occupational health and safety	4.1. Identify hazard and risks	4.1.1. Describe OHS procedures, practices and regulations 4.1.2. Read o OHS indicators o Organizational contingency practices 4.1.3. Practice hazards/risks identification and control	4.1.1. Group discussion 4.1.2. Lecture	4.1.1. Oral evaluation 4.1.2. Written examination	2 hours
	4.2. Evaluate hazard and risks	4.2.1. Describe effects of safety hazards o Read Threshold Limit Value –TLV 4.2.2. Practice reporting safety hazards 4.2.3. Demonstrate evaluating hazards and risks using communication equipment	4.2.1. Group discussion 4.2.2. Lecture 4.2.3. Role play 4.2.4. Demonstration	4.2.1. Oral evaluation 4.2.2. Written examination 4.2.3. Observation	2 hours
	4.3. Control hazards and risks	4.3.1. Describe: o Organization safety and health protocol o Company emergency procedure practices 4.3.2. Practice personal hygiene 4.3.3. Practice drills on responding to emergency	4.3.1. Group discussion 4.3.2. Demonstration 4.3.3. Simulation	4.3.1. Oral evaluation 4.3.2. Observation	2 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	4.4. Maintain occupational health and safety awareness	4.4.1. Identify emergency-related drills information 4.4.2. Practice occupational safety and health standards on personal records in the workplace 4.4.3. Practice emergency related drills in the workplace	4.4.1. Lecture 4.4.2. Role play 4.4.3. Demonstration 4.4.4. Simulation	4.4.1. Written examination 4.4.2. Observation	2 hours

COMMON COMPETENCIES

(60 hours)

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
1. Apply Quality Standards	1.1. Assess quality of received materials	1.1.1. Identify relevant production processes, materials and products 1.1.2. Study and interpret characteristics of materials, software and hardware used in production processes 1.1.3. Perform quality checking procedures 1.1.4. Apply quality Workplace procedures 1.1.5. Identify faulty materials 1.1.6. Check quality of materials or component parts as per manufacturer's standards 1.1.7. Interpret specifications or symbols	1.1.1. Lecture 1.1.2. Field trip 1.1.3. Symposium 1.1.4. Video clips 1.1.5. Simulation/ Role playing	1.1.1. Written test 1.1.2. Demonstration & questioning 1.1.3. Observation & questioning	2 hours
	1.2. Assess own work	1.2.1. Perform workplace procedure in documenting completed work 1.2.2. Perform fault identification and reporting 1.2.3. Observe safety and environmental aspects of production processes 1.2.4. Utilize workplace quality indicators 1.2.5. Document and report deviations from specified quality standards	1.2.1. Field trip 1.2.2. Symposium 1.2.3. Simulation 1.2.4. On the job training	1.2.1. Demonstration & questioning 1.2.2. Observation & questioning	2 hours
	1.3. Engage in quality improvement	1.3.1. Participate in quality improvement processes a. IEC/ISO standards b. Environmental and safety standards 1.3.2. Carry out work as per process improvement procedures 1.3.3. Monitor operation performance 1.3.4. Implement continuous improvement	1.3.1. Field trip 1.3.2. Symposium 1.3.3. Simulation 1.3.4. On the job training	1.3.1. Demonstration & questioning 1.3.2. Observation & questioning	8 hours
2. Comply with environmental protection procedures	2.1. Access information concerning environmental protection	2.1.1. Lecture on relevant environmental protection regulations & codes of practice 2.1.2. Lecture/Discussion on environmental risks associated with workplace operations and related precautions to control the risk	2.1.1. Lecture 2.1.2. Discussion 2.1.3. Demonstration 2.1.4. Viewing multimedia	2.1.1. Observation in workplace 2.1.2. Demonstration 2.1.3. Oral questioning	4 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
	regulations and procedures	2.1.3. Lecture/Discussion on environmental protection standards required in the workplace 2.1.4. Lecture on workplace reporting and recording processes and procedures 2.1.5. Accessing information and data 2.1.6. Identifying potential environmental risks and ways of minimizing them	2.1.5. Hands on practice	2.1.4. Third Party Report	
	2.2. Implement and monitor procedures concerning environmental hazards	2.2.1. Applying environmental protection regulations & codes of practice concerning environmental hazards 2.2.2. Lecture/Discussion on workplace procedures and guidelines for implementing and monitoring procedures concerning environmental hazards 2.2.3. Lecture/Discussion on workplace environmental hazards and related hazard control measures 2.2.4. Using equipment and resources required when implementing and monitoring environmental protection procedures 2.2.5. Lecture/Discussion on Organizational structure and site layout 2.2.6. Reporting and recording processes and procedures 2.2.7. Application of problem solving techniques 2.2.8. Identifying potential environmental hazards and ways on minimizing them 2.2.9. identifying and correctly using equipment and vehicles in accordance with environmental protection regulations and guidelines	2.2.1. Lecture 2.2.2. Discussion 2.2.3. Demonstration 2.2.4. Viewing multimedia 2.2.5. Hands on practice	2.2.1. Observation in workplace 2.2.2. Demonstration 2.2.3. Oral questioning 2.2.4. Third Party Report	4 hours
	2.3. Implement and monitor environmental	2.3.1. Applying relevant environmental protection regulations & codes of practice for environmental control procedures	2.3.1. Lecture 2.3.2. Discussion 2.3.3. Demonstration	2.3.1. Observation in workplace 2.3.2. Demonstration	4 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
	control procedures	2.3.2. Lecture/Discussion on workplace procedures and guidelines for implementing and monitoring environmental control procedures 2.3.3. Using equipment and resources required when implementing and monitoring environmental control procedures 2.3.4. Carry out workplace reporting and recording processes and procedures 2.3.5. Application of problem solving techniques 2.3.6. counsel, advise and inform others on environmental control procedures 2.3.7. identifying and correctly using equipment and vehicles in accordance with environmental control procedures, regulations and guidelines	2.3.4. Viewing multimedia 2.3.5. Hands on practice	2.3.3. Oral questioning	
2. Observe procedures, Specifications and Manuals of Instructions	3.1. Identify and access specification/ manuals	3.1.1. Familiarization on types of manuals used in transmission lines 3.1.2. Identification of symbols used in the manuals 3.1.3. Discussion on manuals and specifications 3.1.4. Accessing information and data	3.1.1. Lecture-demonstration	3.1.1. Oral questioning 3.1.2. Written test or examination	2 Hours
	3.2. Interpret manuals	3.2.1. Interpretation of symbols used in manuals 3.2.2. Lecture and discussion on system of measurements 3.2.3. Lecture on Unit conversion 3.2.4. Accessing information and data	3.2.1. Actual demonstration 3.2.2. Group discussion	3.2.1. Direct observation 3.2.2. Written test or examination	2 Hours
	3.3. Apply information in manual	3.3.1. Application of symbols in manuals 3.3.2. Applying conversion of units of measurements 3.3.3. Applying information from manuals	3.3.1. Demonstration 3.3.2. Group discussion	3.3.1. Demonstration (able to impart knowledge and skills) 3.3.2. Practical and oral exam	2 Hours
	3.4. Store Manual	3.4.1. Manual storing and maintaining procedures 3.4.2. Storing and maintaining manuals	3.4.1. Demonstration	3.4.1. Demonstration	2 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
			3.4.2. Group discussion	3.4.2. Practical and oral exam	
3. Maintain and operate line tools and equipment	4.1. Plan and prepare for work to operate and maintain T/L tools and equipment	4.1.1. Acquire sample work instruction 4.1.2. Interpret sample work instruction 4.1.3. Identify necessary and appropriate occupational health and safety requirements based on job specification 4.1.4. Identify relevant transmission line tools, equipment and hardware based on job specifications	4.1.1. Lecture 4.1.2. Discussion 4.1.3. Demonstration 4.1.4. Viewing multimedia 4.1.5. Hands on practice	4.1.1. Observation in workplace 4.1.2. Demonstration 4.1.3. Oral questioning 4.1.4. Third Party Report	2 hours
	4.2. Prepare T/L hardware, tools and equipment for operation and maintenance	4.2.1. Enumerate the personal protective equipment in preparing T/L tools, hardware and equipment as per job requirements 4.2.2. Procedures in acquiring transmission line tools, equipment and hardware 4.2.3. Perform functionality test of transmission hot line tools as per manufacturers standards	4.2.1. Lecture 4.2.2. Discussion 4.2.3. Demonstration 4.2.4. Viewing multimedia 4.2.5. Hands on practice	4.2.1. Observation in workplace 4.2.2. Demonstration 4.2.3. Oral questioning	2 hours
	4.3. Operate T/L tools and equipment	4.3.1. Enumerate the personal protective equipment in operating T/L tools, hardware and equipment as per job requirements 4.3.2. Discuss procedures in proper handling and application of T/L tools and equipment based on job assignments 4.3.3. Discuss special features and function of identified T/L tools and equipment	4.3.1. Lecture 4.3.2. Discussion 4.3.3. Demonstration 4.3.4. Viewing multimedia 4.3.5. Hands on practice	4.3.1. Observation in workplace 4.3.2. Demonstration 4.3.3. Oral questioning	4 hours
	4.4. Check condition of T/L tools and equipment	4.4.1. Discuss and classify T/L tools and equipment based on different usage and requirements 4.4.2. Study proper segregation of functional and non-functional T/L tools and equipment 4.4.3. Analyze different safety procedures in handling tools and equipment as per manufacturer's instructions	4.4.1. Lecture 4.4.2. Discussion 4.4.3. Demonstration 4.4.4. Viewing multimedia 4.4.5. Hands on practice	4.4.1. Observation in workplace 4.4.2. Demonstration 4.4.3. Oral questioning	2 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		4.4.4. Examine condition of personal protective equipment and tools			
	4.5. Perform basic preventive maintenance	4.5.1. Identify appropriate and different types of lubricants for different type and condition of equipment. 4.5.2. Review lubrication procedures in every preventive maintenance 4.5.3. Explain and perform testing and cleaning of transmission line tools and equipment 4.5.4. Practice inspection of working and non-working tools and equipment 4.5.5. Perform repair and replacement of components and parts for damage and non-working equipment 4.5.6. Discuss good housekeeping after preventive maintenance procedure	4.5.1. Lecture 4.5.2. Discussion 4.5.3. Demonstration 4.5.4. Viewing multimedia 4.5.5. Hands on practice	4.5.1. Observation in workplace 4.5.2. Demonstration 4.5.3. Oral questioning	4 hours
	4.6. Store tools and equipment	4.6.1. Discuss proper inventory and auditing of tools and equipment as per company procedure 4.6.2. Describe and determine different storage places for different tools and equipment 4.6.3. Identify conditions, weather and surroundings appropriate and not appropriate for storage of tools and equipment 4.6.4. Create checklist for inventory and auditing of T/L tools and equipment	4.6.1. Lecture 4.6.2. Discussion 4.6.3. Demonstration 4.6.4. Viewing multimedia 4.6.5. Hands on practice	4.6.1. Observation in workplace 4.6.2. Demonstration 4.6.3. Oral questioning	2 hours
4. Perform Computer Operations	5.1. Plan and prepare for task to be undertaken	5.1.1. Plan and prepare computer operation activity 5.1.2. Determine task requirements based on required output 5.1.3. Determine appropriate hardware and software	5.1.1. Lecture 5.1.2. Modular 5.1.3. Computer based training (e-learning) 5.1.4. Project method	5.1.1. Written/Oral examination 5.1.2. Practical demonstration	2 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		5.1.4. Identify/Select types of computers and basic features of different operating systems 5.1.5. Interpret and follow client-specific guidelines & procedures 5.1.6. Plan task as per data security guidelines	5.1.5. On the job training		
	5.2. Input data into computer	5.2.1. Apply basic ergonomics of keyboard and computer user 5.2.2. Enter/Encode data using appropriate computer programs/applications 5.2.3. Check accuracy of encoded data/information per SOP 5.2.4. Save and store inputted data in storage media 5.2.5. Storage devices and basic categories of memory 5.2.6. Identify and define relevant types of software	5.2.1. Lecture 5.2.2. Modular 5.2.3. Group discussion 5.2.4. Project method 5.2.5. On the job training	5.2.1. Written/Oral examination 5.2.2. Practical demonstration	2 hour
	5.3. Access information using computer/ smartphone	5.3.1. Select correct program/ application based on job requirements 5.3.2. Access computer data/files 5.3.3. Interpret general security, privacy legislation & copyright 5.3.4. Use Productivity Application 5.3.4.1. Microsoft office applications 5.3.5. Learn Business Application 5.3.5.1. Introduction to Basic Programming software 5.3.6. Apply basic ergonomics of keyboard and computer user	5.3.1. Lecture 5.3.2. Computer based training (e-learning) 5.3.3. On the job training	5.3.1. Written/Oral examination 5.3.2. Practical demonstration	2 hours
	5.4. Produce/output data using computer system	5.4.1. Identify types and function of computer peripheral devices 5.4.2. Print and scan office documents and materials 5.4.3. Send office/ business documents through facsimile	5.4.1. Lecture 5.4.2. Group discussion 5.4.3. Modular 5.4.4. On the job training	5.4.1. Written/Oral examination 5.4.2. Practical demonstration	2 hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		5.4.4. Transfer files or data between compatible systems using computer software, hardware/ peripheral devices 5.4.5. Save documents in storage devices 5.4.5.1. CD/DVD 5.4.5.2. USB drives 5.4.5.3. Hard disk drives			
	5.5. Maintain computer equipment and systems	5.5.1. Perform computer equipment/ system basic maintenance procedures 5.5.1.1. Perform basic file maintenance procedures 5.5.1.2. Perform cleaning of PC parts/ hardware components 5.5.1.3. Scan/Debug computer software and applications 5.5.1.4. Perform cleaning and defragmentation of computer files 5.5.1.5. Perform backup of computer files 5.5.2. Enumerate and define different types of computer viruses	5.5.1. Demonstration 5.5.2. Simulation 5.5.3. Modular 5.5.4. Video clips 5.5.5. Computer based training (e-learning)	5.5.1. Written/Oral examination 5.5.2. Practical demonstration	4 hours

CORE COMPETENCIES
(240 hours)

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
1. Inspect transmission line, poles, towers and appurtenances	1.1. Plan and prepare for work	1.1.1. Lecture and discussion on Occupational Health and Safety Requirements on inspection of T/L 1.1.2. Identification of tools and equipment for inspection 1.1.3. Discussion on work instruction on inspection of transmission line	1.1.1. Lecture 1.1.2. Discussion 1.1.3. Demonstration 1.1.4. Viewing multimedia 1.1.5. Hands on Practice	1.1.1. Practical demonstration 1.1.2. Oral questioning 1.1.3. Written exam	4 hours
	1.2. Prepare tools and equipment	1.2.1. Lecture on DOLE-OSHS Rule 1080 – Personal Protective Equipment and Devices 1.2.2. Discussion and demonstration of usage and function of tools for inspection 1.2.3. Discussion and demonstration on operation of equipment for inspection	1.2.1. Lecture 1.2.2. Discussion 1.2.3. Demonstration 1.2.4. Viewing multimedia 1.2.5. Hands on Practice	1.2.1. Practical demonstration 1.2.2. Oral questioning 1.2.3. Written exam 1.2.4. Oral interview	4 hours
	1.3. Conduct transmission line inspection	1.3.1. Lecture and discussion on company line inspection procedures 1.3.2. Lecture and discussion on Company Vegetation Management on inspection of T/L 1.3.3. Lecture on DOLE-OSHS Rule 1212 – Electrical Safety Inspection 1.3.4. Identification and discussion of inspection hazards 1.3.5. Discussion on proper usage of inspection checklist 1.3.6. Lecture and discussion on Structure Design and specification of lines on inspection of T/L	1.3.1. Lecture 1.3.2. Discussion 1.3.3. Actual Demonstration 1.3.4. Viewing multimedia	1.3.1. Practical demonstration 1.3.2. Oral questioning 1.3.3. Written exam	24 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
2. Perform ground transmission line works	2.1. Plan and prepare for ground work	2.1.1. Identification and discussion on Occupational Health and Safety Requirements for ground works 2.1.2. Identification and discussion of tools and equipment for ground works 2.1.3. Discussion on work instruction on performing ground transmission line works	2.1.1. Lecture 2.1.2. Discussion 2.1.3. Demonstration 2.1.4. Viewing multimedia 2.1.5. Hands on Practice	2.1.1. Practical demonstration 2.1.2. Oral questioning 2.1.3. Written exam	4 hours
	2.2. Prepare hardware, tools and equipment for ground work	2.2.1. Discussion and demonstration of usage and function of tools and hardware for ground works 2.2.2. Discussion and demonstration of operation of equipment for ground works	2.2.1. Lecture 2.2.2. Discussion 2.2.3. Demonstration 2.2.4. Viewing multimedia 2.2.5. Hands on Practice	2.2.1. Practical demonstration 2.2.2. Oral questioning 2.2.3. Written exam 2.2.4. Oral interview	4 hours
	2.3. Conduct ground line maintenance work/ procedure	2.3.1. Identification and discussion on ground maintenance hazards 2.3.2. Lecture and discussion on Structure Design and specification of lines on ground works 2.3.3. Discussion/Demonstration of rigging technique 2.3.4. Lecture, demonstration and performance of actual knot tying, rope splicing and reeving 2.3.5. Lecture and discussion of basic Load Principle and Simple Machine Principle 2.3.6. Lecture and discussion on Transmission Line Vegetation Management on ground works 2.3.7. Lecture and discussion on excavation procedure 2.3.8. Lecture and demonstration of hauling and dragging techniques	2.3.1. Lecture 2.3.2. Discussion 2.3.3. Actual Demonstration 2.3.4. Viewing multimedia	2.3.1. Practical demonstration 2.3.2. Oral questioning 2.3.3. Written exam	32 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		2.3.9. Lecture on DOLE-OSH Standards – 2.3.9.1. Rule 1410 – Construction Safety o Excavation o Construction equipment o Plant and equipment 2.3.9.2. Rule 1420 – Logging o Use and maintenance of power saw o Lines, Blocks, Rigging			
3. Perform overhead maintenance works	3.1. Plan and prepare for overhead maintenance works	3.1.1. Identification and discussion on Occupational Health and Safety Requirements for overhead maintenance works 3.1.2. Identification and discussion of tools and equipment for overhead maintenance works 3.1.3. Discussion on work instruction on performing overhead maintenance line works	3.1.1. Lecture 3.1.2. Discussion 3.1.3. Demonstration 3.1.4. Viewing multimedia 3.1.5. Hands on Practice	3.1.1. Practical demonstration 3.1.2. Oral questioning 3.1.3. Written exam	4 hours
	3.2. Prepare hardware, transmission line tools and equipment for overhead maintenance works	3.2.1. Discussion and demonstration of usage and function of tools and hardware for overhead maintenance works 3.2.2. Discussion and demonstration of operation of equipment for overhead maintenance works 3.2.3. Lecture on DOLE-OSHS Rule 1210 – Electrical Safety	3.2.1. Lecture 3.2.2. Discussion 3.2.3. Demonstration 3.2.4. Viewing multimedia 3.2.5. Hands on Practice	3.2.1. Practical demonstration 3.2.2. Oral questioning 3.2.3. Written exam 3.2.4. Oral interview	4 hours
	3.3. Conduct overhead maintenance works	3.3.1. Lecture and discussion on pole climbing exercises 3.3.2. Identification and discussion on overhead maintenance work hazards 3.3.3. Lecture and discussion on Structure Design and specification of lines 3.3.4. Application of rigging techniques 3.3.5. Lecture and discussion on pole setting procedures	3.3.1. Lecture 3.3.2. Discussion 3.3.3. Actual Demonstration 3.3.4. Viewing multimedia	3.3.1. Practical demonstration 3.3.2. Oral questioning 3.3.3. Written exam	160 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		3.3.6. Perform actual pole setting works 3.3.7. Lecture and discussion on installation of anchor systems 3.3.8. Perform actual pole dressing/undressing 3.3.9. Perform actual sagging and clipping of conductor/ OHGW 3.3.10. Perform actual installation of pre-formed armor rod and vibration damper 3.3.11. Perform actual knot tying, rope splicing and reeving 3.3.12. Perform pole climbing 3.3.12.1. ascending 3.3.12.2. descending 3.3.13. Perform pole exercises 3.3.13.1. picking stones 3.3.13.2. cross arm carry 3.3.13.3. insulator/anchor log dragging 3.3.13.4. ball passing 3.3.13.5. limbo rock 3.3.13.6. pole hurdle 3.3.13.7. tug-of-war 3.3.13.8. load passing 3.3.13.9. installation of pre-formed armor rod 3.3.13.10. insulator change-out (suspension only) 3.3.13.11. reach out 3.3.14. Lecture on DOLE-OSHS Rule 1210 – Electrical Safety			

3.2 TRAINING DELIVERY

1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET.
    a. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards)
    b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies;
    c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology.
    d. Assessment is based in the collection of evidence of the performance of work to the industry required standards;
    e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence.
    f. Training program allows for recognition of prior learning (RPL) or current competencies;
    g. Training completion is based on satisfactory performance of all specified competencies.

2. The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:

    2.1. Institution- Based:

    - Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP;

    - Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

    - The traditional classroom-based or in-center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components.

2.2. Enterprise-Based:

- Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation.
- Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson.
- Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

2.3. Community-Based:

- Community-Based – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).

3.3 TRAINEE ENTRY REQUIREMENTS

The trainees who wish to enter the course should possess the following requirements:

- Must have completed at least 10 yrs. basic education or an alternative learning systems (ALS) certificate of completion with grade 10 equivalent holder
- Able to communicate both oral and/or written (either in English or local dialect)
- Must be physically fit to undergo training e.g. ***no fear of working in height***

This list does not include specific institutional requirements, such as height and age requirements, educational attainment, appropriate work experience and others that may be required from the trainees by the school or training center delivering the TVET program.

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS

Recommended list of tools, equipment and materials for the training of **20 trainees** for Transmission Line Installation and Maintenance NC II:

TOOLS		EQUIPMENT		HARDWARE	
QTY	**ITEM**	**QTY**	**ITEM**	**QTY**	**ITEM**
6 pc	Pliers 9”	2 pc	Lever hoist 1.6 tons	15 pcs.	Insulator, porcelain 15k lbs
6 pc	Ballpeen hammers, 2 lbs	1 set	Capstan/Hand winch (includes tightener)	1 pc	Steel pole
6 pc	Screwdrivers 10” - type	1 pc	Cable height meter	2 pc	Crossarm, tubular 10’
6 pc	Screw driver 10” + type	1 pc	Mega phone	2 pc	Crossarm, tubular 8’
4 set	Hacksaw	2 pc	Lever hoist 3.2 tons	4 pc	Angle crossarm brace
6 pc	Adjustable wrenches 12’	6 pc	Snatch block	10 pc	Machine bolt 5/8” Ø x 12”
2 pcs.	Auger bit 5/8” Ø,	6 set	Climbing set	10 pc	Machine bolt 5/8” Ø x 16”
1 pc	Bolt cutter	1 pc	Hydraulic cutter	10 pc	Machine bolt 1/2” Ø x 6”
2 pc	Straight shovel 8’	1 unit	Splicing machine	6 pc	Oval eye bolt 5/8” Ø x 10”
2 pc	Shovel, spoon 8’	1 pc	Ladder, adj, instd 12’ extendable up to 20’	12 pc	Oval eye bolt 5/8” Ø x 6”
2 pc	Digging bar 5’	1 unit	Chainsaw	12 pc	Washer, flat square 4”x4” x ¼” for 5/8” Ø
2 pc	Shovel, spade	2 pc	Puller cable 1.5 ton (tirfor)	12 pc	Washer, curve square 4”x4” x ¼” for 5/8” Ø
2 pc	Digger, hole 8’	1 set	Grounding cluster, all angle clamp	6 pc	Y-ball cleaves
2 pc	Steel tape 5 mtr.	1 set	Wedge connector tool	6 pc	Clamp, suspension with socket eye for 336.4MCM ACSR
2 pc	Cant hook	1 set	Earth Resistance tester	4 pc	Clamp, suspension for OHGW, steel
1 pc	Binocular, telescope	1 set	Voltage detector (non-contact) multi range	6 pc	Armor rod preformed 336.4 MCM, ACSR
4 pc	Block snatch, single sheave, aluminum	1 set	Compression machine	6 pc	Anchor shackle 5/8” Ø
2 pc	Block, triple sheave, steel	2 set	Hoist, capstan, motorized	6 pc	Screw, anchor, thimble eye 5/8” Ø x 6’
2 pc	Block, triple sheave, steel	1 unit	Line Truck	6 pc	Rod, anchor thimble eye 5/8” Ø x 8’
2 pc	Wire grip pulling for 336.4 MCM	1 unit	Pole trailer/ stake truck	200 mtr	Guy wire, 7/16” Ø
2 pc	Wire grip pulling for 795 MCM	1 set	Reel stand, stationary	4 pc	Bond, pole 10”
1 roll	Rope polydacron ½” Ø,			6 pc	Guy grip, preformed 7/16” Ø

TOOLS		EQUIPMENT		HARDWARE	
QTY	**ITEM**	**QTY**	**ITEM**	**QTY**	**ITEM**
1 roll	Rope polydacron 5/8" Ø		**PPE**	12 pc	Double arming bolt, 5/8" Ø x22" w/ 4nuts
2 pc	Steel sling 3/8" Ø, 3'L	20 pc	Hard hat	3 pc	Eye nut 5/8" Ø
		20 pair	Safety shoes	6 pc	Connector, wedge type 336.4x336.4MCM
2 pc	Sling, webbing, 2"Ø,4' L	20 pc	Safety goggles	6 pc	Strain clamp with socket eye, 336.4 MCM
2 pc	Sling, webbing, 2"Ø,3' L	20 pair	Working gloves	3 pcs	Composite insulator, suspension 70Kn
1 pc	Skinning knife	20 pc	Working clothes	2 pc	Crossarm tubular 23 ‘
1 pc	Level, spirit			2 pc	X-brace, steel
4 pc	Roller, Stringing alloy			4 pc	X-brace end fitting
4 pc	Roller, Stringing steel			3 pc	Double arming plate
2 pc	Tool bucket			6 pc	Angle support
1 pc	Digital camera			6 pc	Twisted shackle 5/8" Ø
1 set	Wrench, socket, automatic ½" square drive			6 pc	Ball clevis 5/8" Ø
4 pc	Cutter key puller			4 pc	Strain clamp for OHGW, steel
	Safety tools			1pc	Crossarm tubular 13' 6"
1 pc	Spine board			1 pc	Crossarm tubular 19' 6"
2 set	Harness, full body with fall arrest lanyard, chest and back			3 pc	Long bolt eye 5/8" Ø
2 set	First-aid kit set			200 mtr	OHGW 3/8" Ø
				300 mtr	ACSR 336.4 MCM

3.5 TRAINING FACILITIES

Recommended space requirements for the various teaching/learning areas are as follows:

TEACHING/LEARNING AREAS	SIZE IN METERS (M)	AREA IN SQ. M	QTY	TOTAL AREA IN SQ. M
Lecture Area	6 x 8	48	1	48
Training Area (***Field-based***)	15 X 50	750	1	750
Learning Resource Area	4 x 5	20	1	20
Tool Room / Storage Area	4 x 5	20	1	20
Wash ,Toilet & Locker Room	3 x 5	15	1	15
Total				853
Facilities / Equipment / Circulation*				256
Total Area				**1,109**

***** Area requirement is equivalent to 30% of the total teaching/learning areas***

3.6 TRAINERS QUALIFICATIONS

TRANSMISSION LINE INSTALLATION AND MAINTENANCE NC II

- Must be a holder of National TVET Trainer Certificate (NTTC) level I in Transmission Line Installation and Maintenance NCII;
- Must have at least 3 years relevant industry experience within the last 6 years;
- Must have completed the 40 hours Construction Occupational Safety and Health (COSH) Course per Department Order No. 13 s. 1998, Guidelines Governing Occupational Safety and Health in the Construction Industry conducted by OSHC and DOLE accredited Safety Training Organizations;
- Must be computer literate; and
- Must be physically fit.

3.7 INSTITUTIONAL ASSESSMENT

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency. The institutional assessment is administered by the trainer/assessor.

The result of the institutional assessment may be considered as evidence for the assessment for national certification.

SECTION 4: ASSESSMENT AND CERTIFICATION ARRANGEMENTS

Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards.

The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to an employable unit(s) of competency in partial fulfillment of the requirements of the national qualification.

4.1 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1.1. To attain the National Qualification of **Transmission Line Installation and Maintenance NC II**, the candidate must demonstrate competency in all the units listed in Section 1. Successful candidates shall be awarded a **National Certificate II** signed by the TESDA Director General.

4.1.2. The qualification of **Transmission Line Installation and Maintenance NC II** can be attained through demonstration of competence through project-type assessment covering all the units required.

4.1.3. Assessment shall cover all competencies, with basic and common integrated or assessed concurrently with the core units of competency.

4.1.4. Any of the following are qualified to apply for assessment and certification:

4.1.4.1 Graduate of formal or non-formal training in transmission line installation and maintenance or related training;

4.1.4.2 Worker with at least 6 months relevant experience in transmission line installation and maintenance.

4.1.5. The existing NCs or COCs in Transmission Line Installation and Maintenance NC II are still valid until the said NCs or COCs have expired. Individuals are advised to take the assessment for this amended/updated TR upon expiry of their certificates.

4.1.6. The guidelines on assessment and certification are discussed in detail in the "Operating Procedures on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Competency Assessment and Certification System (PTCACS)".

4.2 COMPETENCY ASSESSMENT REQUISITE

4.2.1 Self-Assessment Guide. The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment.

This document can:

a. Identify the candidate's skills and knowledge
b. Highlight gaps in candidate's skills and knowledge
c. Provide critical guidance to the assessor and candidate on the evidence that need to be presented
d. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior `

4.2.2 Accredited Assessment Center. Only assessment center accredited by TESDA is authorized to manage the assessment activities of candidates for national certification.

4.2.3 Accredited Competency Assessor. Only competency assessor accredited by TESDA is authorized to assess the competencies of candidates for national certification.

GLOSSARY OF TERMS

GENERAL

1) **Certification -** is the process of verifying and validating the competencies of a person through assessment

2) **Certificate of Competency (COC)** – is a certification issued to individuals who pass the assessment for a single unit or cluster of units of competency

3) **Common Competencies** - are the skills and knowledge needed by all people working in a particular industry

4) **Competency** - is the possession and application of knowledge, skills and attitudes to perform work activities to the standard expected in the workplace

5) **Competency Assessment -** is the process of collecting evidence and making judgments on whether competency has been achieved

6) **Competency Standard (CS)** - is the industry-determined specification of competencies required for effective work performance

7) **Context of Assessment** - refers to the place where assessment is to be conducted or carried out

8) **Core Competencies -** are the specific skills and knowledge needed in a particular area of work - industry sector/occupation/job role

9) **Critical aspects of competency -** refers to the evidence that is essential for successful performance of the unit of competency

10) **Elective Competencies -** are the additional skills and knowledge required by the individual or enterprise for work

11) **Elements** - are the building blocks of a unit of competency. They describe in outcome terms the functions that a person performs in the workplace.

12) **Evidence Guide** - is a component of the unit of competency that defines or identifies the evidences required to determine the competence of the individual. It provides information on critical aspects of competency, underpinning knowledge, underpinning skills, resource implications, assessment method and context of assessment

13) **Level -** refers to the category of skills and knowledge required to do a job

14) **Method of Assessment** - refers to the ways of collecting evidence and when, evidence should be collected

15) **National Certificate (NC)** – is a certification issued to individuals who achieve all the required units of competency for a national qualification defined under the Training Regulations. NCs are aligned to specific levels within the PTQF

16) **Performance Criteria** - are evaluative statements that specify what is to be assessed and the required level of performance

17) **Qualification** - is a cluster of units of competencies that meets job roles and is significant in the workplace. It is also a certification awarded to a person on successful completion of a course in recognition of having demonstrated competencies in an industry sector

18) **Range of Variables** - describes the circumstances or context in which the work is to be performed

19) **Recognition of Prior Learning (RPL)** – is the acknowledgement of an individual's skills, knowledge and attitudes gained from life and work experiences outside registered training programs

19) **Resource Implication -** refer to the resources needed for the successful performance of the work activity described in the unit of competency. It includes work environment and conditions, materials, tools and equipment

20) **Basic Competencies -** are the skills and knowledge that everyone needs for work

21) **Training Regulations (TR)** – refers to the document promulgated and issued by TESDA consisting of competency standards, national qualifications and training guidelines for specific sectors/occupations. The TR serves as basis for establishment of qualification and certification under the PTQF. It also serves as guide for development of competency-based curricula and instructional materials including registration of TVET programs offered by TVET providers

22) **Underpinning Knowledge -** refers to the competency that involves in applying knowledge to perform work activities. It includes specific knowledge that is essential to the performance of the competency

23) **Underpinning Skills** - refers to the list of the skills needed to achieve the elements and performance criteria in the unit of competency. It includes generic and industry specific skills

24) **Unit of Competency** – is a component of the competency standards stating a specific key function or role in a particular job or occupation; it is the smallest component of achievement that can be assessed and certified under the PTQF

SECTOR SPECIFIC

1. **ACSR** - abbreviation of Aluminum Cable Steel Reinforced, a cable type having aluminum strands and a core of one or more steel strands. ACSR are primarily used for medium and high voltage lines and may also be used for overhead services to individual customers.
2. **Anchor Rod** – used for securing a machine, structure or part to masonry or other material.
3. **Block and Tackle -** is a combination or set of single or several sheaved blocks used to obtain a mechanical advantage in handling heavy loads**.**
4. **Cable Height Meter** - to determine the height of overhead cables
5. **Conductor –** is a conductive material usually made of aluminum or copper used to carry current along the overhead transmission line
6. **Full Body Harness** - form of protective equipment designed to protect a person from injury due to falling
7. **Grounding Cluster** – used to protect personnel working in de-energized lines, from induced voltage, fault current feed, lightning strikes, erroneous switching & accidental contact with adjacent lines
8. **Ground line maintenance work –** refers to activities in the ground done by transmission line personnel which do not require climbing activity
9. **Groundworks** - a person working at ground level in support of a lineman working overhead.
10. **Guy Wire.** The wire or cable normally used in a down guy is seven-strand galvanized steel wire or seven-strand aluminum clad wire. Alum weld wire consists of steel wire strands coated with a layer of aluminum to prevent corrosion. Guy wire is used in various sizes with diameters from ¼ to 1 ¼ in.
11. **Guy-wire assembly** -is a tensioned cable designed to add stability to structures (frequently ship masts, radio masts, wind turbines, utility poles, and tents). One end of the cable is attached to the structure, and the other is anchored to the ground at a distance from the structure's base.
12. **Handline** - used for lifting or lowering small objects and also for holding equipment away from the pole as it is being raised
13. **Hazard** - a dangerous condition, potential or inherent, that can bring about an interruption or interfere with the expected orderly progress of an activity. It is any work materials, equipment, methods or practices that have the potential to cause harm to life, health, property or environment.
14. **Hazardous** - an atmosphere that may expose employees to the risk of death, atmosphere incapacitation, impaired ability to self-rescue unaided, injury, or acute illness.
15. **Insulator** - a device that is used to electrically isolate a conductor or electrical device from ground or a different electrical potential. Insulators must support the conductors and withstand both the normal operating voltage and surges due to switching and lightning. Insulators are broadly classified as either pin-type, which support the conductor above the structure, or suspension type, where the conductor hangs below the structure. Up to about 33 kV (69 kV in North America)

both types are commonly used. At higher voltages only suspension-type insulators are common for overhead conductors. Insulators are usually made of wet-process porcelain or toughened glass, with increasing use of glass-reinforced polymer insulators.

16. **Line to line clearance** – refers to the distance of live conductors to another live conductor.
17. **Line to ground clearance** - refers to the distance of live conductors to the ground
18. **Lineman** - a payroll classification or title given a craftsperson whose duties include climbing wood poles or steel structures to perform work on electric power transmission and distribution circuits.
19. **OHSAS 18001** – is a framework for an Occupational Health and Safety (OHS) Management Systems and is part of the OHSAS 18000 series of standards, along with OHSAS 18002.
20. **Overhead ground wire (OHGW)** – is an electrical conductor which provides protection to transmission lines against direct lightning strokes.
21. **Personal Protective Equipment (PPE) -** refers to protective clothing, helmets, goggles, or other garment or equipment designed to protect line personnel from job-related occupational hazards
22. **Personal Protective Equipment (PPE) -** the term shall include, but is not limited to, devices designed to be worn by workers for eye, face, head, respiratory, hand, arm, body, leg, foot, and fall protection.
23. **Philippine Grid Code -** establishes and documents the basic rules, requirements, procedures and standards that govern the operation, maintenance and development of the high-voltage backbone transmission system in the Philippines (Republic Act No. 9136, also known as the “Electric Power Industry Reform Act of 2001)
24. **Pole Dressing** – refers to installation of structure components, such as cross arms, insulators and etc.
25. **Pole Setting** – refers to pole positioning, pole erection and pole facing.
26. **Pre-formed Armor Rod -** a spiral-formed aluminum rod, a group of which is placed around a conductor at the point of suspension to minimize vibration and to protect the conductor from burning in case of a flashover.
27. **Reeving** - The operation of passing the rope around the sheaves of blocks.
28. **Rigging –** is the term used to described the process of moving/lifting both heavy and light loads using rope, blocks, and other special equipment.
29. **Right of way (ROW)** – the legal right, established by usage or grant, to pass along a specific route through grounds or property belonging to another.
30. **Risks -** a probability or threat of damage, injury, liability, loss or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through preemptive action.
31. **Slings** - provide a method of attaching rigging tools to structures or equipment. They can be made of rope, webbing or steel. Some slings are made with a continuous loop while others are made with an eye on each end.

32. **Slope Protection –** The protection of an embankment slope against wave action or erosion.
33. **Transmission line** - is the material medium or structure that forms all or part of a path from one place to another for directing the transmission of energy, such as electromagnetic waves or acoustic waves, as well as electric power transmission. Components of transmission lines include wires, coaxial cables, dielectric slabs, optical fibers, electric power lines, and waveguides.
34. **Vibration Damper** - a device used to dissipate the vibration of conductors on a transmission line.
35. **Voltage Detector**- is a sensor used to detect presence of electricity in a wire.

ANNEX A - COMPETENCY MAP

TRANSMISSION LINE INSTALLATION & MAINTENANCE NC II COMPETENCY MAP

BASIC COMPETENCIES

Receive and 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**
Practice occupational health and safety procedures	Lead Workplace Communication	Lead Small Working Teams	Develop and Practice Negotiating Skills With Team Members	Guide Effective Solutions to Problems Arising from Work Activities	Check and Develop the Use of Mathematical Concepts & Techniques	Use Relevant Technologies Applicable to Assigned Work
Lead in Utilizing Specialized Communication Skills	Assist in Developing Team and Individuals	Apply Problem Solving Techniques in the Workplace	Collect, analyze and organize information	Plan and Organize Work for Several Working Teams	Promote Environmental Protection	

COMMON COMPETENCIES

Apply quality standards	**Comply with environmental protection procedures**	**Observe procedures, specifications and manual of instruction**	**Operate and Maintain T/L tools and equipment**	**Operate a personal computer**

CORE COMPETENCIES

Tender Diesel Engine	Operate Diesel Power plant	Maintain and Repair Diesel Engine Systems and Alternator	Service Alternator/ Generator	Diagnose and Repair Diesel Engine	Diagnose and Repair Electrical System	Overhaul Diesel Engine
Perform transmission line pole erection	Perform overhead transmission line work	Perform cold-line maintenance work	Perform live-line maintenance work	Perform ground line maintenance work	Plan transmission line maintenance job	Install emergency restoration structure (ERS)
Inspect/Assess transmission line components' conditions	Implement transmission line maintenance works	**Inspect transmission line, pole, towers and appurtenances**	Erect distribution line poles	Climb pole and install pole assembly/conductors	Install distribution line equipment and devices	Install consumer service connection facility
Conduct initial root cause analysis	**Perform ground transmission line works**	**Perform overhead maintenance works**	Install/construct new transmission line structures	Perform overhead transmission line works	Install emergency restoration structure (ERS)	Perform earth/ground resistance testing
Plan assigned maintenance work	Supervise transmission line maintenance work					

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TRAINING REGULATIONS (TR)
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- **THE TECHNICAL EXPERT COMMITTEE (FOR CY 2017)**

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Chief Engineer, Transmission Line
District 7, North Luzon Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

GENEROSO A. RANA
Lineman
District 2, South Luzon Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

BYRON Q. CAFIRMA
Line Foreman
District 4, North Luzon Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

RENATO A. PENETRANTE
Line Engineer
District 3, Visayas Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

CIRILO M. ARELLANO, JR.
Lineman
District 2, North Luzon Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

THOMAS HENRIE T. OCHEA
Lineman
District 2, Visayas Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

JOEL H. SALLE
Chief Engineer, Transmission Line
District 2, South Luzon Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

WALTER A. BAYRON
Line Engineer
District 2, Mindanao Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

FRANCISCO A. ZUNIEGA, JR.
Line Foreman
District 3, South Luzon Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

OLIVER N. ISAAC
Line Foreman
District 4, Mindanao Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

- **THE VALIDATION EXPERT COMMITTEE**

MARIO M. DELA CRUZ
Line Foreman
District 7, North Luzon Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

RYCH G. HARDER
Line Foreman
District 4,Visayas Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

ROMMEL P. DEL ROSARIO
Lineman
District 7, North Luzon Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

LORREMYR B. BARNIDO
Lineman
District 2, Mindanao Operations & Maintenance
National Grid Corporation of the Philippines (NGCP)

GORGONIO M. BELLO
Labor & Employment Officer III
Bureau of Working Conditions
Department of Labor and Employment

GILBERT Q. MARQUEZ
Labor & Employment Officer III
Bureau of Working Conditions
Department of Labor and Employment

DENNIS C. AQUINO
Engineer IV
Occupational Safety and Health Center
Department of Labor and Employment

- **NATIONAL GRID CORPORATION OF THE PHILIPPINES**

  The Management and Staff of NGCP – Learning & Development Division, HRTO

  GILBERT G. GATDULA
  Division Head II, Learning & Development

  ARIEL P. DELAS ALAS
  Senior Specialist, Learning & Development

- **THE TESDA BOARD - STANDARDS SETTING AND SYSTEMS DEVELOPMENT COMMITTEE**

- **THE MANAGEMENT AND STAFF OF TESDA SECRETARIAT**

  - **Qualifications and Standards Office (QSO)**

    1. Dir. IMELDA B. TAGANAS - QSO-TESDA
    2. JULFORD C. ABASOLO - CSDD-QSO-TESDA
    3. SAMUEL E. CALADO, JR. - CSDD-QSO-TESDA
    4. VENZEL Y. CONCOLES - CSDD-QSO-TESDA