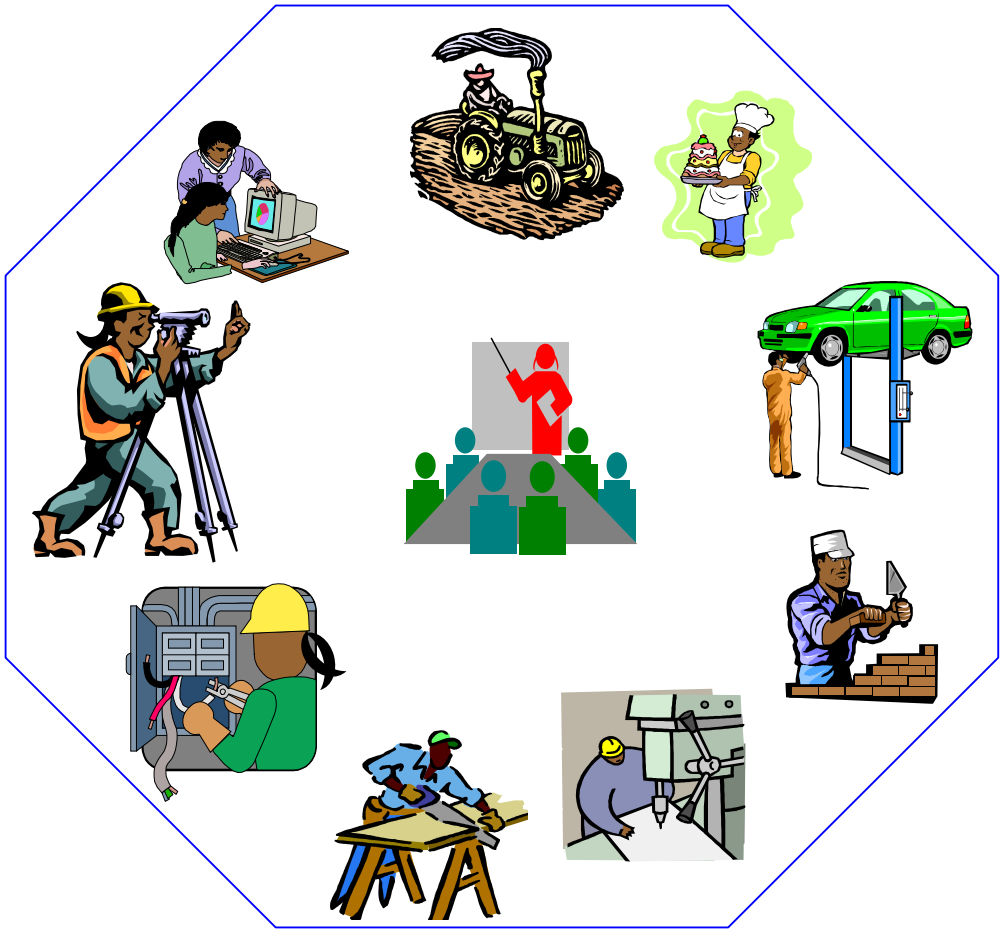
Federal Democratic Republic of Ethiopia

OCCUPATIONAL STANDARD

TRAIN ELECTRICAL/ ELECTRONIC ASSEMBLY SUPPORT WORK

NTQF Level I



Ministry of Education
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Introduction

Ethiopia has embarked on a process of reforming its TVET-System. Within the policies and strategies of the Ethiopian Government, technology transformation – by using international standards and international best practices as the basis, and, adopting, adapting and verifying them in the Ethiopian context – is a pivotal element. TVET is given an important role with regard to technology transfer. The new paradigm in the outcome-based TVET system is the orientation at the current and anticipated future demand of the economy and the labor market.

The Ethiopian Occupational Standard (EOS) is the core element of the Ethiopian National TVET-Strategy and an important factor within the context of the National TVET-Qualification Framework (NTQF).They are national standards, which define the occupational requirements and expected outcome related to a specific occupation without taking TVET delivery into account.

This document details the mandatory format, sequencing, wording and layout for the Ethiopia Occupational Standard which comprised of Units of Competence.

A Unit of Competence describes a distinct work activity. It is documented in a standard format that comprises:

- Occupational title, NTQF level
- Unit title
- Unit code
- Unit descriptor
- Elements and Performance criteria
- Variables and Range statement
- Evidence guide

Together all the parts of a Unit of Competence guide the assessor in determining whether the candidate is competent.

The ensuing sections of this EOS document comprise a description of the occupation with all the key components of a Unit of Competence:

- chart with an overview of all Units of Competence for the level including the Unit Codes and the Unit of Competence Titles
- contents of each Unit of Competence listed in the chart
- occupational map providing the Technical and Vocational Education and Training (TVET) providers with information and important requirements to consider when designing training programs for this standards and for the individual, a career path

UNIT OF COMPETENCE CHART

Occupational Standard: Train Electrical/ Electronics Assembly Support Work		
Occupational Code: IND TEA1		
NTQF Level I		
IND TEA1 01 0117 Apply Safe Working Practices in an Electrical Train Workshop	**IND TEA1 02 0117** Identify and Select Hand and Power Tools, Components and Materials	**IND TEA1 03 0117** Receive and Store Materials and Equipment Used in Electrical Work
IND TEA1 04 0117 Measure and Carry out Electrical and Electronics Wiring Preparations	**IND TEA1 05 0117** Use Instrumentation Drawings, Specifications, Standards & Equipment Manuals	**IND TEA1 06 0117** Apply Quality Standards
IND TEA1 07 0117 Work with Others	**IND TEA1 08 0117** Receive and Respond to Workplace Communication	**IND TEA1 09 0117** Demonstrate Work Values
IND TEA1 10 0117 Develop Understanding of Entrepreneurship	**IND TEA1 11 0117** Apply 3S	

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Apply Safe Working Practices in an Electrical Train Workshop**
Unit Code	**IND TEA1 01 0117**
Unit Descriptor	This competence describes the performance outcomes to apply basic safety and emergency procedures in order to contribute to a safe workplace for staff, customers and others. The unit involves the safety factors related to the use of electrical train workshop hand tools and hand-held power tools, fixed equipment, chemical.

Element	Performance criteria
1. Apply basic safety procedures	1.1 Worksite ***policies and procedures*** for safety are followed and maintained while performing work tasks 1.2 Unsafe situations and ***hazards*** in the workplace are recognised and reported according to ***Workplace Health and Safety (WHS) requirements*** and regulations 1.3 Procedure and reporting guidelines for machinery and equipment breakdowns are identified 1.4 Fire and safety hazards are identified and precautions are taken or reported according to workplace policy and procedures 1.5 Storage and handling practices for dangerous goods and substances are identified and applied according to workplace policy, procedures and WHS requirements 1.6 Workplace policy regarding manual handling practice is identified and followed 1.7 Participation in WHS consultative arrangements established by company is exercised
2. Apply emergency procedures	2.1 Worksite policies and ***emergency procedures*** regarding illness or accidents are identified and applied 2.2 Safety alarms are identified 2.3 Fire fighting appliances and equipment are located and identified for emergency use 2.4 Qualified persons are identified for contacting in the event of accident or sickness of customers or staff 2.5 Accident and incident documentation practices are followed according to worksite accident and injury procedures

	2.6 Worksite evacuation procedures are identified

Variable	Range
Policies and procedures	May include but not limited to: • hazard policies and procedures • emergency, fire and accident procedures • personal safety procedures • procedures for the use of personal protective clothing and equipment • use of motor vehicles • resolution procedures • job procedures and work instructions • safe working practices • workplace operating procedures.
Hazards	May include but not limited to: • sharp cutting tooling and instruments • electricity and water • toxic substances • damaged packing material or containers • broken or damaged equipment • flammable materials and fire hazards • lifting practices • spillages • waste and debris especially on floors, ladders, trolleys.
WHS requirements	May include but not limited to: • are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures • protective clothing and equipment • use of tools and equipment • handling of material • use of fire-fighting equipment • first aid equipment • Hazard control, including control of hazardous materials and toxic substances.
Emergency procedures	May include but not limited to: • sickness or accident reporting procedure • fire or workshop evacuation involving staff or customers • environmental incidents • Incidents and accidents involving harmful or hazardous substances.

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • safe manual handling theories and practices • communication skills to communicate verbal and written information relating to reporting procedures and unsafe

	conditions • initiative and enterprise to: ➢ select and use appropriate safety equipment, materials, processes and procedures ➢ collect, organize and understand technical information relating to recognizing and reporting unsafe situations ➢ understand workshop safety-related procedures ➢ Read, interpret and follow information on written instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents. • adapt to emerging situations in an automotive workplace • identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding • communicate effectively with others involved in or affected by the work • identify and assess hazardous situations and rectify, or report to the relevant persons • safely handle and store dangerous and hazardous goods and substances • apply safe manual handling practices • identify fire safety equipment and procedures applicable to emergency situations in an automotive workplace • follow workplace safety, accident, incident and evacuation procedures.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • implications for WHS of business operations and customer relations • common electrical train electrical workshop safety terminology • WHS regulations, requirements, equipment and material and personal safety requirements • the location and application of fire fighting appliances in the workshop • dangerous goods and hazardous chemicals handling processes • workplace reporting procedures
Underpinning Skills	Demonstrate skills of: • literacy skills to: ➢ understand workshop safety-related procedures ➢ read, interpret and follow information on written instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents • numeracy skills to understand numbers and mathematical

	• planning and organising skills to: ➢ identify risk factors and take action to minimize risk ➢ plan and organize activities which implement and follow standard procedures • problem-solving skills to: ➢ Recognize a workplace problem or a potential problem and take action ➢ refer problems outside area of responsibility to appropriate person and suggest possible causes ➢ establish diagnostic processes which recommend improvements for WHS issues • self-management skills to: ➢ select and use appropriate safety equipment, materials, processes and procedures ➢ recognize limitations and seek timely advice ➢ document and report numbers for emergency procedures ➢ follow workplace documentation, such as codes of practice and operating procedures • teamwork skills to: ➢ work with others and in a team by assisting and cooperating with team members ➢ work with diverse individuals and groups • technical skills to: ➢ collect, organize and understand technical information relating to recognizing and reporting unsafe situations • technology skills to use workplace safety-related technology to assist with safe work practices
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be accessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Identify and Select Hand and Power Tools, Components and Materials**
Unit Code	**IND TEA1 02 0117**
Unit Descriptor	This unit covers undertaking a schedule of work for selecting appropriately identified components, accessories or materials in an agreed time, to a quality standard and with a minimum of waste, using appropriate technology mediums where required.

Element	Performance criteria
1. Prepare to identify components, accessories and materials	1.1 Instructions for preparing components, ***accessories or materials*** identification are communicated and confirmed to ensure clear understanding. 1.2 ***OHS policies and procedures*** are communicated and confirmed to ensure they are understood as they apply in the carrying out of the work. 1.3 ***Necessary tools***, equipment and personnel protective equipment are identified, scheduled and checked to ensure they work correctly as intended and are safe to use in accordance with established procedures. 1.4 Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved. 1.5 Resources and materials needed to do the work are confirmed, scheduled and obtained in accordance with established procedures. 1.6 Schedule(s) for identifying components, accessories or materials including practices for working safely is/are confirmed in accordance with instructions and requirements.
2. Select components, accessories and materials.	2.1 OHS policies and procedures and safe work practices are followed. 2.2 Schedule for selecting components, accessories or materials are followed to ensure work is completed in an agreed time, to a quality standard and with a minimum of waste, using appropriate technology. 2.3 Further instructions are sought from appropriate personnel in the event of unplanned happenings or conditions. 2.4 Ongoing checks of work quality are undertaken in accordance with instructions and requirements.

3 Confirm selection of components, accessories and materials.	3.1 Final checks are made to ensure selection of components, accessories or materials conforms to instructions. 3.2 Appropriate personnel are notified of completion of the selection process. 3.3 Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures. 3.4 Work area is cleaned up and made safe and sustainable energy practices are followed. 3.5 Appropriate records are updated in accordance with instructions and established procedures.

Variable	**Range**
Accessories or materials	May include but not limited to: • Appliances • Business equipment • Computers • Data Communications • Electrical • Electrical Machines • Electronics • Fire protection • Instrumentation • Refrigeration and Air Conditioning • Renewable / sustainable energy, and • Security technology
OHS policies and procedures	• One of the key health and safety principles of the Occupational Health and Safety is to ensure that those persons who manage or control things that create health and safety risks in the workplace are responsible for eliminating those risks. Where they can't be eliminated, they are responsible for reducing those risks so far as is reasonably practicable.
Necessary tools	May include but not limited to: • Employers are responsible for maintaining in good repair • any tools and equipment supplied to workers. • Workers must use tools and equipment properly and report any defects to supervisors.

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • Implement Occupational Health and Safety workplace procedures and practices, including the use of risk

	control measures as specified in the performance criteria and range statement • Identify and select components/accessories/materials for work shop activities. • A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. • Implement Occupational Health and Safety workplace procedures and practices, including the use of risk control measures as specified in the performance criteria and range statement
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires that the specified essential knowledge and associated skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.
Underpinning Skills	Demonstrate skills: • For optimisation of training and assessment effort, competency development in this unit may be arranged concurrently with unit: • Carry out routine work activities in the work environment
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Receive and Store Materials and Equipment Used in Electrical Work**
Unit Code	**IND TEA1 03 0117**
Unit Descriptor	This unit covers the receiving and storing of materials and equipment for train electrical workshop. It encompasses receiving materials and equipment, checking consignment notes, storing materials and equipment and completing the necessary documentation. This unit is intended for competency development entry-level employment-based programs incorporated in approved contracts of training.

Element	Performance Criteria
1. Receive materials and equipment.	1.1. OHS procedures for a given work area are identified, obtained and understood. 1.2. OHS risk control work measures and procedures are followed. 1.3. Documentation on pending material and equipment deliveries is read, and content and time of the delivery is understood. 1.4. Deliveries are checked against consignment documentation before they are received. 1.5. Discrepancies in deliveries are notified to work supervisor and supplier in accordance with established routines. 1.6. Materials and equipment are handled in strict accordance with OHS risk control workshop preparation measures and procedures.
2. Store materials and equipment.	2.1. OHS risk control work measures and procedures are followed. 2.2. ***Storing materials and equipments*** prevent damage or loss in accordance with established routines. 2.3. Security of the stored materials and equipment is maintained in accordance with established routines. 2.4. Material and equipment documentation is forwarded to an appropriate person in accordance with established routine/procedures.

Variable	Range
Storing materials and equipments	• Demonstrates in relation to receiving and storing materials and equipment for workshop store.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • In particular this shall incorporate evidence that shows a candidate is able to: Implement Occupational Health and Safety workplace procedures and practices, including the use of risk control measures as specified in the performance criteria and range statement • Demonstrate an appropriate level of skills enabling employment • Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures • Methods for recording and maintaining work records
Underpinning Knowledge and Attitudes	Demonstrate knowledge of • evidence shall show an understanding of train electrical technology work store materials and equipment to an extent indicated by the following aspects • Communicating with personnel encompassing: ➢ Oral communications ➢ Written procedures and work instructions ➢ Communicating with suppliers ➢ Communicating with customers
Underpinning Skills	Demonstrate skills of: • Evidence shall show an understanding of electrical train technology workshop store materials and equipment to an extent indicated by the following aspects: • Work activities records encompassing: ➢ Purpose and extent of maintaining work activities records in an enterprise ➢ Types of records for maintaining work activities in an enterprise ➢ Methods for recording and maintaining work records ➢ Work records required by regulation requirements • Stock control methods encompassing: ➢ Enterprise purchasing policy ➢ Stock data base ➢ Purchase and sales entry mechanisms ➢ Reordering methods • Using basic computers and applications encompassing: ➢ Starting up ➢ Selecting application ➢ Entering information ➢ Saving ➢ Printing

Resource Implications	The resources used for assessment should reflect current industry practices in relation to receiving and storing materials and equipment for electro technology work.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Measure and Carry out Electrical and Electronics Wiring Preparations**
Unit Code	**IND TEA1 04 0117**
Unit Descriptor	The unit includes identification and confirmation of work requirement, preparation for work, soldering and testing of joints and completion of work processes, including clean-up and documentation. Work involves the application of solder in electrical/electronic wiring and circuitry applications.

Element	Performance criteria
1. Prepare for work	1.1 Work instructions are used to determine job requirements, including job sheets, quality and quantity of material 1.2 Job specifications are read and interpreted 1.3 ***WHS requirements***, including personal protection needs, are observed throughout the work 1.4 ***Materials*** for repairs and replacements are selected and inspected for quality 1.5 Correct hand and power tooling and safety equipment are selected and checked for safe use 1.6 ***Safe operating procedures*** are determined to minimise waste material 1.7 Procedures are identified for maximising energy efficiency while completing the job
2. Prepare components/ wiring/circuits, tooling and equipment for soldering	2.1 Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2 Materials/components to be joined are cleaned and solder/flux combinations identified 2.3 Soldering equipment is prepared/cleaned 2.4 ***Environmental requirement*** preparation is completed without causing damage to vehicle or component 2.5 Preparation activities are carried out according to a standard that meets industry regulations/guidelines, WHS, legislation and enterprise procedures/policies
3. Carry out soldering of components/wiring/ circuits	3.1 Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2 Soldering is completed without causing damage to vehicle or component

	3.3 Soldering joint is tested prior to placing into service 3.4 Soldering activities are carried out according to a standard that meets industry regulations/guidelines, WHS, legislation and enterprise policy/procedures
4. Clean up work area and maintain equipment	4.1 ***Information/documents*** about materials that can be reused is collected and stored 4.2 Waste and scrap are removed following workplace ***emergency procedures*** 4.3 ***Personal protective equipment*** and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures 4.4 Unserviceable equipment is tagged and faults identified in accordance with workplace 4.5 Operator maintenance is completed in accordance with manufacturer/component supplier specifications and site procedures 4.6 ***Tooling and equipment*** are maintained in accordance with workplace procedures

Variable	Range
WHS requirements	May include but not limited to: • WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Materials	May include but not limited to: • cleaning substances, flux and solder
Safe operating procedures	May include but not limited to: • the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Environmental requirements	May include but not limited to: • waste management, noise, dust and clean-up management
Information/documents	May include but not limited to: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches

	• safe work procedures related to soldering of electrical wiring/circuits • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Ethiopian Standards
Emergency procedures	May include but not limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Personal protective equipment	May include but not limited to: • Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Tooling and equipment	May include but not limited to: • hand tooling and soldering equipment, including electric and gas-fired torches

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • WHS regulations/requirement, equipment material and personal safety requirements • fluxes and their application • communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • identifying, setting up, operating and maintaining heating equipment and hand tooling • achieving soldering outcome and work quality relevant to application.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • types of material, including solder, electrical terminals, wires and circuits • preparation and soldering procedures • guidelines regarding acceptable solder tolerance levels to be considered and manufacturer/component supplier specification • work organisation and planning processes • enterprise quality processes

Underpinning Skills	Demonstrate skills to: • collect, organise and understand information related to soldering of electrical components/wiring, work orders, plans and safety procedures • plan and organise activities, including preparation and layout of worksite and obtaining of equipment and material to avoid backtracking, workflow interruptions or wastage • work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity • use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks • establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage • use workplace technology related to soldering of electrical wiring/circuits, including the use of soldering tooling, measuring equipment and communication devices and the reporting/documenting of results
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Use Instrumentation Drawings, Specifications, Standards and Equipment Manuals**
Unit Code	**IND TEA1 05 0117**
Unit Descriptor	This unit covers using drawings, specifications, standards and equipment manual applicable to installing, maintaining and fault finding process controls. It encompasses the principles of process control embodied in drawings, standards, specifications and equipment manuals, matching equipment with that specified for a given function and location and determining the connections required between pneumatic, hydraulic and electrical equipment from instrumentation drawings and specifications.

Element	Performance criteria
1. Prepare to use instrumentation drawings, specification, standards and equipment manuals.	1.1. The need for ***instrumentation drawings***, specification, standards or equipment manuals is determined from the nature of the work to be undertaken 1.2. Established OHS risk control measures and procedures are followed. 1.3. Established routines and procedures are followed to obtain instrumentation drawings, specification, standards or equipment manuals required for the work to be undertaken.
2. Use instrumentation drawings, specification, standards and equipment manuals	2.1. Instrumentation drawings, specification, standards and/or equipment manuals are used 2.2. Instrumentation drawings, specification, standards and equipment manuals are interpreted using knowledge of process controls 2.3. Instrumentation drawing layouts, conventions and symbols are selected, appropriate to the work being undertaken. 2.4. Dimensions are extracted from drawings and diagrams for application to work undertaken. 2.5. Location of equipment is determined from instrumentation drawings and specification. 2.6. Connections between pneumatic, hydraulic and electrical equipment are determined from instrumentation drawings and specifications 2.7. Equipment manuals are reviewed to ascertain their format and where information relevant to the work to be undertaken is located.

3. Convey instrumentation information and ideas using drawings and diagrams.	3.1. ***Drawing conventions*** are used in neat freehand drawings to convey instrumentation information and ideas to others involved in the work to be undertaken 3.2. Instrumentation drawing conventions are used to neatly correct freehand original job drawing to show final 'as-installed' arrangement.. 3.3. Corrected drawings are forwarded to appropriate person(s) in accordance with established procedures.

Variable	**Range**
Instrumentation drawings	May include but not limited to: • The Functional Area Qualification Standard References Guides are developed to assist operators, maintenance personnel, and the technical staff in the acquisition of technical competence and qualification within the Technical Qualification Program
Drawing conventions	May include but not limited to: • Designers use drawing to explore alternatives and to test their ideas employing different symbols and configurations for different design concerns/tasks.
Instrument assembly	May include but not limited to: • This unit must be demonstrated in instrumentation assembly relation to installation, fault finding, maintenance or development work functions using at instrumentation drawings, specification, standards and equipment manuals for least two different process control systems

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • Sketching of instrumentation and control drawings: ➢ Sketching a schematic circuit diagram from a given circuit board layout diagram, wiring or installation drawing and installation or modification of a specified project using information contained within Manuals, ➢ Sketching a part or equipment layout needed to perform a specified task, such as installation or modification, from given Manuals, Catalogues, Specifications and Drawings • A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to: ➢ Implement Occupational Health and Safety workplace procedures and practices, including the use of risk control measures as specified in the

	performance criteria and range statement ➢ Apply sustainable energy principles and practices as specified in the performance criteria and range statement ➢ Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements. ➢ Demonstrate an appropriate level of skills enabling employment ➢ Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures ➢ Identifying instrumentation drawings, specification, standards and equipment manuals relevant to the work to be undertaken. ➢ Interpreting instrumentation drawings, specification, standards and equipment manuals using knowledge of process controls and instrumentation drawing layouts, conventions and symbols.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Introduction to the purposes of measurement in industrial processes • Instrument control loops • Types of measurement in these processes • Local and remote measurement • Measurement signal methods • Signal transmissions electrical standards • Signal transmissions pneumatic standards • Flow, temperature, pressure and other appropriate measurements. • Identification and purpose of instruments measuring processes directly and those measuring indirectly. • Instrumentation and control components: sensors, transducers, converters and transmitters.
Underpinning Skills	Demonstrate skills of: • Instrument Standards encompassing: ➢ Instrumentation standards ➢ Relationship between standards ➢ Using standards ➢ Fluids in Process Piping Colour Coding. ➢ Instruments symbols • Instrumentation Terminology and SI units encompassing: ➢ SI base units ➢ SI derived units ➢ Scientific notation and engineering notation ➢ SI prefixes.

	➢ Instrumentation metric units ➢ Non-standard SI Units - kg/cm2, etc. ➢ Conversion of units • Instrumentation terminology: ➢ Calibration of link and lever instruments encompassing: ➢ Principles of levers and links and calibration of indicator recorder instrument ➢ Calibration terms ➢ Calibrate a link and lever instrument ➢ Interpret calibration data so as to identify the types of error displayed by an instrument and whether the instrument is within its specified accuracy. ➢ Interpretation of graphs and tables associated with instrumentation • Instrumentation safe working practices encompassing: ➢ Identification of instrumentation and control hazards ➢ Risk control measures for instrumentation work. ➢ Risk assessment • Instrumentation drawings, diagrams and manuals encompassing: ➢ Electro technology drawing symbols for instrumentation and control (electrical/electronic circuits; Instrument circuits/diagrams; PLC diagrams; pneumatic; hydraulic) ➢ Standards used in Instrumentation drawings (ISA; ASME; AS; SAMA). ➢ Drawings used in Instrumentation - schematic; single line; wiring; PLC diagrams; process flow diagrams - brief instrument information; process loop diagrams - details, terminals, types of instruments. ➢ Manufacturers Data Sheets, Manuals, Specifications and Test Procedures - instrumentation Manuals, Catalogues and Drawings. ➢ Interpretation of the specifications contained within instrumentation Manuals, Catalogues and Drawings. ➢ Interpretation of the test procedures contained within instrumentation Manuals, Catalogues and Drawings. ➢ Comparison of data presented in different forms for the same equipment. ➢ Identification of data relevant to instrumentation from a range of publicity material. ➢ Extraction of information such as calibration, testing or installation procedures from manuals, specification sheets and drawings.

Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Apply Quality Standards**
Unit Code	**IND TEA1 06 0117**
Unit Descriptor	This unit covers the knowledge, attitudes and skills required in applying quality standards in the operational activities.

Elements	Performance Criteria
1. Assess own work	1.1 Completed work is checked against organization standards relevant to the activity being undertaken. 1.2 An understanding is demonstrated on how the work activities and completed work relate to the next process and to the final appearance of the service / product. 1.3 Faulty service is identified and isolated in accordance with policies and procedures. 1.4 Faults and any identified causes are recorded and reported in accordance with standard procedures.
2. Assess quality of service rendered	2.1 Services rendered are ***quality checked*** against standards and specifications. 2.2 Service rendered are evaluated using the appropriate evaluation parameters and in accordance with standards. 2.3 Causes of any identified faults are identified and corrective actions are taken in accordance with policies and procedures.
3. Record information	3.1 Basic information on the quality performance is recorded in accordance with organization procedures. 3.2 Records of work quality are maintained according to the requirements of the organization / enterprise.
4. Study causes of quality deviations	4.1 Causes of deviations from final outputs or services are investigated and reported in accordance with standard procedures. 4.2 Suitable preventive action is recommended based on organization ***quality standards*** and identified causes of deviation from specified quality standards of final service or output.
5. Complete documentation	5.1 Information on ***quality parameters*** and other indicators of service performance is recorded. 5.2 All service processes and outcomes are recorded.

Variable	Range
Quality check	May include but not limited to: • Visual inspection • Physical measurements

	• Check against specifications/preferences
Quality standards	May include but not limited to: • materials • service • output and processes/procedures
Quality parameters	May include but not limited to: • style/design/specifications • durability • service variations • materials, damage and imperfections

Evidence Guide	
Critical Aspects of Competency	Demonstrates skills and knowledge to: • Check completed work continuously against standard • Identify and isolate faulty service / workmanship • Check service rendered against organization standards • Identify and apply corrective actions on the causes of identified faults • Record basic information regarding quality performance • Investigate causes of deviations of services against standard • Recommend suitable preventive actions
Underpinning Knowledge	Demonstrates knowledge of: • Relevant quality standards, policies and procedures • Characteristics of services • Safety environment aspects of service processes • Relevant evaluation techniques and quality checking procedures • Workplace procedures • Reporting procedures
Underpinning Skills	Demonstrates skills to: • Interpret work instructions, specifications and standards appropriate to the required work or service • Carry out relevant performance evaluation • Maintain accurate work records in accordance with procedures • Meet work specifications • Communicate effectively within defined workplace procedures
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Work with Others**
Unit Code	**IND TEA1 07 0117**
Unit Descriptor	This unit covers the knowledge, skills, and attitudes required to develop workplace relationship and contribute in workplace activities.

Element	Performance Criteria
1. Develop effective workplace relationship	1.1. ***Duties and responsibilities*** are done in a positive manner to promote cooperation and good relationship 1.2. Assistance is sought from ***workgroup*** when difficulties arise and addressed through discussions 1.3. ***Feedback on performance*** provided by others in the team is encouraged, acknowledged and acted upon 1.4. Differences in personal values and beliefs are respected and acknowledged in the development
2. Contribute to work group activities	1.1 ***Support is provided to team members*** to ensure workgroup goals are met 1.2 Constructive contributions to workgroup goals and tasks are made according to ***organizational requirements*** 1.3 Information relevant to work are shared with team members to ensure designated goals are met

Variable	Range
Duties and responsibilities may include but not limited to:	• Job description and employment arrangements • Organization's policy relevant to work role • Organizational structures • Supervision and accountability requirements including OHS • Code of conduct
Work group may include but not limited to:	• Supervisor or manager • Peers/work colleagues • Other members of the organization
Feedback on performance may include but not limited to:	• Formal/Informal performance appraisal • Obtaining feedback from supervisors and colleagues and clients • Personal, reflective behavior strategies • Routine organizational methods for monitoring service delivery
Providing support to team members may include but not limited to:	• Explaining/clarifying • Helping colleagues • Providing encouragement • Providing feedback to another team member • Undertaking extra tasks if necessary

Organizational requirements	May include but not limited to: • Goals, objectives, plans, system and processes • Legal and organization policy/guidelines • OHS policies, procedures and programs • Ethical standards • Defined resources parameters • Quality and continuous improvement processes and standards

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Provide support to team members to ensure goals are met • Acton feedback from clients and colleagues • Access learning opportunities to extend own personal work competencies to enhance team goals and outcomes
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • relevant legislation that affects operations, especially with regards to safety • reasons why cooperation and good relationships are important • the organization's policies, plans and procedures • how to elicit and interpret feedback • workgroup member's responsibilities and duties • importance of demonstrating respect and empathy in dealings with colleagues • how to identify and prioritize personal development opportunities and options
Underpinning Skills	Demonstrates skills to: • understand the organization's policies and work procedures • write simple instructions for particular routine tasks • interpret information gained from correspondence • request advice, receive feedback and work with a team • organize work priorities and arrangement • select and use technology appropriate to a task • relate to people from a range of social, cultural and ethnic backgrounds
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Receive and Respond to Workplace Communication**
Unit Code	**IND TEA1 08 0117**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to receive, respond and act on verbal and written communication.

Element	Performance Criteria
1. Follow routine spoken messages	1.1 Required information is gathered by listening attentively and correctly interpreting or understanding information/instructions. 1.2 Instructions/information is properly recorded. 1.3 Instructions are acted upon immediately in accordance with information received. 1.4 Clarification is sought from workplace supervisor on all occasions when any instruction/information is not clear.
2. Perform workplace duties following written notices	*2.1* ***Written notices and instructions*** are read and interpreted correctly in accordance with ***organizational guidelines***. 2.2 Routine written instruction is followed in sequence. 2.3 Feedback is given to workplace supervisor based on the instructions/information received.

Variable	Range
Written notices and instructions	May include but not limited to: • Handwritten material • printed material • Internal memos • External communications • Electronic mail • Briefing notes • General correspondence • Marketing materials • Journal articles
Organizational guidelines	May include but not limited to: • Information documentation procedures • Company policies and procedures • Organization and service manuals

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Demonstrate knowledge of organizational procedures for handling verbal and written communications • Receive and act on verbal messages and instructions • Record instructions/information
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • organizational policies/guidelines in regard to processing internal/external information • ethical work practices in handling communications • communication process
Underpinning Skills	Demonstrates skills to: • receive and clarify conciseness messages/information/communication • record messages/information accurately
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Demonstrate Work Values**
Unit Code	**IND TEA1 09 0117**
Unit Descriptor	This unit covers the knowledge, skills and attitude required in demonstrating proper work values.

Elements	Performance Criteria
1. Define the purpose of work	1.1 One's unique sense of purpose for working and the 'whys' of work are identified, reflected on and clearly defined for one's development as a person and as a member of society. 1.2 Personal mission is achieved in harmony with company's values.
2. Apply work values/ethics	2.1 ***Work values/ethics/concepts*** are classified and reaffirmed in accordance with the transparent company ethical standards, policies and guidelines. 2.2 ***Work practices*** are undertaken in compliance with industry work ethical standards, organizational policy and guidelines 2.3 Personal behavior and relationships with co-workers and/or clients are conducted in accordance with ethical standards, policy and guidelines. 2.4 ***Company resources*** are used in accordance with transparent company ethical standard, policies and guidelines.
3. Deal with ethical problems	3.1 Company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct are accessed and applied in accordance with transparent company ethical standard, policies and guidelines. 3.2 ***Work incidents/situations*** are reported and/or resolved in accordance with company protocol/guidelines. 3.3 Resolution and/or referral of ethical problems identified are used as learning opportunities.
4. Maintain integrity of conduct in the workplace	4.1 Personal work practices and values are demonstrated consistently with acceptable ethical conduct and company's core values. 4.2 Instructions to co-workers are provided based on ethical, lawful and reasonable directives. 4.3 Company values/practices are shared with co-workers using appropriate behavior and language.

Variable	Range
Work values/ethics/ concepts	May include but are not limited to: • Commitment/ Dedication • Sense of urgency • Sense of purpose • Love for work • High motivation • Orderliness • Reliability and Dependability • Competence • Goal-oriented • Sense of responsibility • Being knowledgeable • Loyalty to work/company • Sensitivity to others • Compassion/Caring attitude • Balancing between family and work • Sense of nationalism
Work practices	May include but are not limited to: • Quality of work • Punctuality • Efficiency • Effectiveness • Productivity • Resourcefulness • Innovativeness/Creativity • Cost consciousness • 5S • Attention to details
Company resources	May include but are not limited to: • Consumable materials • Equipment/Machineries • Human • Time and Financial resources
Work incidents/ Situations	May include but are not limited to: • Violent/intense dispute or argument • Gambling • Use of prohibited substances • Pilferages • Damage to person or property • Vandalism • Falsification • Bribery • Sexual Harassment and Blackmail

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Define one's unique sense of purpose for working • Clarify and affirm work values/ethics/concepts consistently in the workplace • Demonstrate work practices satisfactorily and consistently in compliance with industry work ethical standards, organizational policy and guidelines • Demonstrate personal behavior and relationships with co-workers and/or clients consistent with ethical standards, policy and guidelines • Use company resources in accordance with company ethical standard, policies and guidelines. • Follow company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct/behavior
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Occupational health and safety • Work values and ethics • Company performance and ethical standards • Company policies and guidelines • Fundamental rights at work including gender sensitivity • Work responsibilities/job functions • Corporate social responsibilities • Company code of conduct/values • Balancing work and family responsibilities
Underpinning Skills	Demonstrates skills in: • Interpersonal skills • Communication skills • Self awareness, understanding and acceptance • Application of good manners and right conduct
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Develop Understanding of Entrepreneurship**
Unit Code	**IND TEA1 10 0117**
Unit Descriptor	This unit covers knowledge, skills and attitude required to understand the concepts, principles, functions, strategies and methods of entrepreneurship. It also covers identifying and developing the entrepreneurial competencies.

Elements	Performance Criteria
1. Describe and explain the concept, principles, and scope of entrepreneurship	1.1 The concept and principles of entrepreneurship are analyzed and discussed. 1.2 Entrepreneurial traits and distinguishing features, entrepreneurial motivations and types of entrepreneurs are identified and discussed. 1.3 The role of entrepreneurship development for the Ethiopian economy is explained and discussed. 1.4 Entrepreneurship for women and disables is discussed and analyzed.
2. Discuss how to become an entrepreneur	2.1 The positive mind set, attitude towards poverty and "can do mentality" is developed. 2.2 Self-employment as an individual economic independence and personal growth is discussed and analyzed. 2.3 Advantages and disadvantages of self-employment and being an employee are explained and discussed. 2.4 Major competencies of successful entrepreneurs are identified and explained. 2.5 Self-potential is assessed to determine if qualified to become an entrepreneur. 2.6 The behaviors of successful entrepreneurs are identified and discussed. 2.7 Business ideas are generated using appropriate tools, techniques and steps. 2.8 Business opportunities are identified and assessed.
3. Discuss how to start and organize an enterprise	3.1 The concepts and ***legal forms*** of ***business enterprises*** in Ethiopia are identified and discussed 3.2 Business Ethics is understood and developed. 3.3 Facts about micro, small and medium enterprises are discussed, clarified and understood. 3.4 Key success factors in setting up micro, small and medium businesses are identified and explained.

	3.5 Procedures for identifying suitable market for business are discussed and understood. 3.6 ***Major factors*** to consider in selecting a location for a business are identified and discussed. 3.7 Amount of money needed to start an enterprise is estimated and various sources of finance identified and discussed.
4. Discuss how to operate an enterprise	4.1 Processes of hiring and managing people are explained and discussed. 4.2 The importance, techniques and application of self-management skills, negotiation skills and time management skills, decision skills are discussed and understood. 4.3 The techniques and procedures of managing sales are explained and discussed. 4.4 Factors to be considered in selecting suppliers and the steps to follow when doing business with them are identified and discussed. 4.5 Awareness of how new technologies can affect micro, small and medium business is developed, and Characteristics of appropriate technology for use are explained and discussed. 4.6 Risk assessment and management of business enterprise are performed regularly. 4.7 Qualities are properly inspected and inventories properly managed. 4.8 Basic concepts of Monitoring and Evaluation are explained and understood.
5. Discus how to prepare and use financial records	5.1 Importance of ***financial source documents*** and record keeping is discussed. 5.2 ***Financial recording documents*** are identified and prepared. 5.3 Different types of cost and expense that occur in a business and how to manage them are discussed and understood. 5.4 Factors and procedures in knowing the cost and expense of the enterprise are discussed and understood. 5.5 Simple financial statements are prepared and understood
6. Develop one's own business plan	6.1 The concept, importance and process of preparing/ writing a business plan are discussed and understood

	6.2 ***Feasibility of the business*** idea is made clear and understood. 6.3 Findings of the feasibility study are interpreted, assessed and analyzed. 6.4 Standard structure and format are applied in preparing business plan. 6.5 Problems that may arise or encounter when starting a business are identified and understand.

Variables	**Range**
Legal forms	May include but not limited to: • Sole proprietorship • Partnership • Cooperatives • Private Limited Company
Business Enterprises	May include but not limited to: • Micro • Small • Medium
Major factors	May include but not limited to: • Economics (local economy) • Population • Competition
Financial source documents	May include but not limited to: • Cash book • Vouchers • Invoices • Receipts • Check
Financial recording documents	May include but not limited to: • Journal • Ledger • Fixed asset records • Inventory record • Payroll sheet • Account receivable • Account payable • Daily sales record
Feasibility of the business	May include but not limited to: • opportunities available • market competition • timing/ cyclical considerations • skills available • resources available • location and/ or premises available

	• risk related to a particular business opportunity, especially • in regard to Occupational Health and Safety and • environmental considerations

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Explain principles and concept of entrepreneurship • Discuss how to become entrepreneur • Discuss how to organize an enterprise • Discuss how to operate an enterprise • Discus how to prepare and use financial records • Develop business plan
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Entrepreneurship concepts, principles, roles and types • Entrepreneurial traits, motivation and distinguishing features • Types of entrepreneurs • Entrepreneurial competencies • Entrepreneurial behaviors • Business ideas and business opportunities • Self potential assessment • Types of enterprises • Legal forms of business ownership • Risk assessment and evaluation • Self-employment and employment • Managing sales, people and time • Facts about micro, small and medium enterprises • Micro, Small and Medium Enterprises • Key success factors for setting up micro, small and medium enterprises • Procedures for identifying suitable markets • Business location • Major factors for selecting business location • Quality control • Inventory management • Monitoring and evaluation • New technologies • Startup capital • Investment capital • Working capital • Financing options • Financial records • Costs and expenses • Business plan and Feasibility study
Underpinning Skills	Demonstrate skills to: • Planning, organizing, hiring and leading skills

	• Self-management skills • Negotiation skills • Time management skills • Problem solving skills • Decision making skills • Selling skills • Risk assessment skills • Presentation skills • Inventory controlling skills • Using technology • Financial record keeping skills • Preparing simple financial statement • Financial reporting skills • Managing money • Suppliers selection skills • Monitoring and evaluation skills
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Train Electrical/ Electronics Assembly Support Work Level I	
Unit Title	**Apply 3S**
Unit Code	**IND TEA1 11 0117**
Unit Descriptor	This Unit Title covers the knowledge, skills and attitudes required by a worker to apply 3S techniques to his/her workplace. The unit assumes the worker has a particular job in the allocated workplace known by the individual.

Elements	Performance Criteria
1. Organize junior Kaizen Promotion Team (KPT).	1.1. Basics, principles and stages of KPT are identified using appropriate procedures. 1.2. Structure of ***Junior KPT*** is established in accordance with the organizational procedures. 1.3. Effective and appropriate contributions are made to complement team activities and objectives using individual skills and competencies. 1.4. Effective and appropriate forms of communications are used and undertaken with KPT members who contribute to know KPT activities and objectives. 1.5. Kaizen Board (Visual Management Board) is prepared and used in harmony with different workplace contexts.
2. Prepare for work.	2.1. Work instructions are used to determine job requirements, including method, material and equipment. 2.2. Job specifications are read and interpreted following working manual. 2.3. ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work. 2.4. Appropriate materials are selected. 2.5. ***Safety equipment and tools*** are identified and checked for safe and effective operation.
3. Sort items.	3.1. Plan is prepared to implement sorting activities. 3.2. Cleaning activities are performed. 3.3. All ***items*** in the workplace are identified following ***the appropriate procedures***. 3.4. Necessary and ***unnecessary items*** are listed using the ***appropriate format***. 3.5. ***Red tag*** strategy is used for unnecessary items.

	3.6. Unnecessary items are evaluated and placed in an appropriate place other than the workplace. 3.7. ***Necessary items*** are recorded and quantified using appropriate format. 3.8. Performance results are reported using appropriate formats. 3.9. Necessary items are regularly checked in the workplace.
4. Set all items in order.	4.1. Plan is prepared to implement set in order activities. 4.2. General cleaning activities are performed. 4.3. Location/layout, storage and indication methods for items are decided. 4.4. Necessary ***tools and equipment*** are prepared and used for setting in order activities. 4.5. Items are placed in their assigned locations. 4.6. After use, the items are immediately returned to their assigned locations. 4.7. Performance results are reported using appropriate formats. 4.8. Each item is regularly checked in its assigned location and order.
5. Perform shine activities.	5.1. Plan is prepared to implement shine activities. 5.2. Necessary tools and equipment are prepared and used for shinning activities. 5.3. ***Shine activity*** is implemented using appropriate procedures. 5.4. Performance results are reported using appropriate formats. 5.5. Regular shinning activities are conducted.

Variable	**Range**
Junior KPT	may include but not limited to: • 3S • 3MU (Mura, Muri and MUDA) • 4P (Policy, Procedure, People and Plant) • 4M (Material, Method, Man and Machine) • PDCA (Plan, Do, Check and Act)
OHS requirements	may include but not limited to: • Legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling

	of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances. • Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices. • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization. • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Safety equipment and tools	may include but not limited to: • dust masks / goggles • glove • working cloth • first aid and safety shoes
Items	may include but not limited to: • tools • jigs/fixtures • materials/components • machine and equipment • manuals • documents • personal items (e.g. bags, lunch boxes and posters) • safety equipment and personal protective equipment • other items which happen to be in the work area
The appropriate procedures	may include but not limited to: • steps for implementing 3S (sort, set in order and shine) activities. • written, verbal and computer based or in some other format.
Unnecessary items	are not needed for current production or administrative operation and include but not limited to: • defective or excess quantities of small parts and inventory • outdated or broken jigs and dies • worn-out bits • outdated or broken tools and inspection gear • old rags and other cleaning supplies • electrical equipment with broken cords • outdated posters, signs, notices and memos some locations where unneeded items tend to accumulate may include but not limited to: • in rooms or areas not designated for any particular purpose • in corners next to entrances or exists

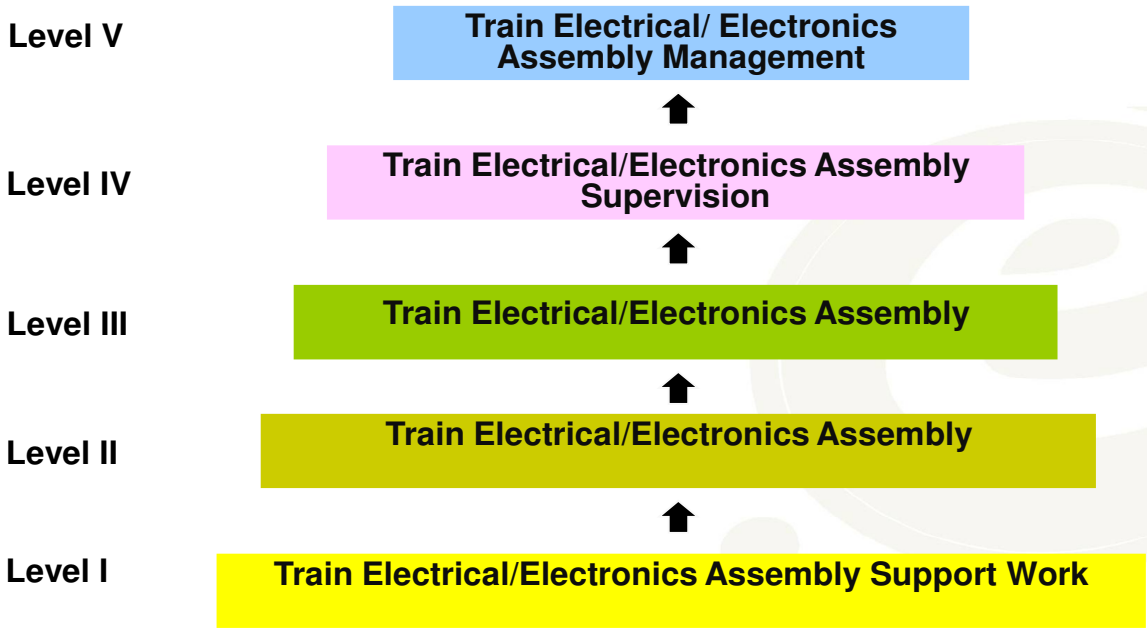
	• along interior and exterior walls • next to partitions and behind pillars • under the eaves of warehouses • under desks and shelves and in desk and cabinet drawers • near the bottom of tall stacks of items • on unused management and production schedule boards • in tools boxes that are not clearly sorted
Appropriate format	may include but not limited to: • all items, necessary and unnecessary items.
Red tag	A format prepared with a red color paper or card which is filled and attached temporarily on the unnecessary items until decision is made. The red tag catch people's attention because red is a color that stands out. So to fill and attach red tag on items, asks the following three questions: • Is this item needed? • If it is needed, is it needed in this quantity? • If it is needed, does it need to be located here?
Necessary items	Are required in the workplace for current production or administrative operation in the amount needed.
Tools and equipment	May include but not limited to: • paint • hook • sticker • signboard • nails • shelves • chip wood • sponge • broom • pencil • shadow board/ tools board
Shine activity	May include but not limited to: • Inspection • Cleaning • Minor maintenance may include: ➢ Tightening bolts ➢ Lubrication and Replacing missing parts

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Discuss how to organize KPT. • Describe the pillars of 5S. • Implement 3S in own workplace by following appropriate procedures.

Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Kaizen principle, pillars and concept • Key characteristic of Kaizen • Elements of Kaizen • Wastes/MUDA • Basics of KPT • Aims, benefits and principles of KPT • Stages of KPT • Structure and role of the components of Junior KPT • Concept and parts of Kaizen board • Concept and benefits of 5S • The pillars of 5S • Three stages of5S application • Benefits and procedure of sorting activities • The concept and application of Red Tag strategy • OHS procedures • Benefits and procedure of set in order activities • Set in order methods/techniques • Benefits and procedure of shine activities • Inspection methods • Planning and reporting methods • Method of Communication
Underpinning Skills	Demonstrates skills of: • Participating actively in KPT • technical drawing • communication skills • planning and reporting own tasks in implementation of 3S • following procedures to implement 3S in own workplace • using sorting formats to identify necessary and unnecessary items • improving workplace layout following work procedures • preparing labels, slogans, etc. • reading and interpreting documents • observing situations • gathering evidence by using different means • recording activities and results using prescribed formats • working with others • solving problems by applying 3S • preparing and using Kaizen board • preparing and using tools and equipment to implement 3S
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.

Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

ELECTRICAL/ELECTRONICS ASSEMBLY



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