



**COMPETENCY STANDARD
FOR**

Consumer Electronics

(Light Engineering Industry Skills Council)

Level: 2

Competency Standard Code: CS-LE-CE-L2-EN-V1

**National Skills Development Authority
Prime Minister's Office, Bangladesh**

Contents

Introduction	2
Overview	3
Approval of Competency Standard	5
List of Abbreviations	6
Units & Elements at a Glance:	8
Generic Competencies	10
GN003L2V1: Use English in the workplace	11
Sector Specific Competencies	14
Occupation Specific Competencies.....	15
OUCE001L2V1: Perform Basic IT Skills.....	16
OUCE002L2V1: Install, Repair and Service LCD/LED Television.....	19
OUCE003L2V1 – Install Solar Panel and Service Solar Battery Charger.....	23
OUCE004L2V1 – Install Closed Circuit Television (CCTV)	26
OUCE005L2V1 – Install Set Top Box.....	29
OUCE006L2V1 - Repair and service IPS (Inverter), UPS and AVR	32
Development of Competency Standard	36
Validation of Competency Standard by Standard and Curriculum Validation Committee (SCVC)	37
Copyright	38

Introduction

The National Skills Development Authority (NSDA) aims to enhance an individual's employability by certifying completeness with skills. NSDA works to expand the skilling capacity of identified public and private training providers qualitatively and quantitatively. It also aims to establish and operationalize a responsive skill ecosystem and delivery mechanism through a combination of well-defined set of mechanisms and necessary technical supports.

Key priority economic growth sectors identified by the government have been targeted by NSDA to improve current job skills along with existing workforce to ensure required skills to industry standards. Training providers are encouraged and supported to work with industry to address identified skills and knowledge to enable industry growth and increased employment through the provision of market responsive inclusive skills training program. "**Consumer Electronics** " is selected as one of the priority occupations of **Light Engineering** Sector. This standard is developed to adopt a demand driven approach to training with effective inputs from Industry Skills Councils (ISC's), employer associations and employers.

Generally, a competency standard informs curriculum, learning materials, assessment and certification of trainees enrolled in skills training. Trainees who successfully pass the assessment will receive a qualification in the National Skills Qualification Framework (NSQF) and will be listed on the NSDA's online portal.

This competency standard is developed to improve skills and knowledge in accordance with the job roles, duties and tasks of the occupation and ensure that the required skills and knowledge are aligned to industry requirements. A series of stakeholder consultations, workshops were held to develop this document.

The document also details the format, sequencing, wording and layout of the competency standard for an occupation which is comprised of units of competence and its corresponding elements.

Overview

A competency standard (CS) is a written specification of the knowledge, skills and attitudes required for the performance of an occupation, trade or job corresponding to the industry standard of performance required in the workplace.

The purpose of a competency standards is to:

- provide a consistent and reliable set of components for training, recognising and assessing individuals' skills, and may also have optional support materials
- enable industry recognised qualifications to be awarded through direct assessment of workplace competencies
- encourage the development and delivery of flexible training which suits individual and industry requirements
- encourage learning and assessment in a work-related environment which leads to verifiable workplace outcomes

Competency standards are developed by a working group comprised of representative from NSDA, key Institutions, ISCs, and industry experts to identify the competencies required for the occupation.

It describes the skills, knowledge and attitude needed to perform effectively in the workplace. It acknowledges that individuals can achieve technical and vocational competency in many ways by emphasizing what the learner can do, not how or where they learned to do it. With competency standards, training and assessment may be conducted at the workplace or at training institute or any combination of these.

Competency standards consist of a number of units of competency. A unit of competency describes a distinct work activity that would normally be undertaken by one person in accordance with industry standards.

Units of competency are documented in a standard format that comprises of:

- unit title
- unit code
- nominal duration
- unit descriptor
- elements and performance criteria
- variables and range statement
- curricular content guide
- assessment evidence guides

Together, all the parts of a unit of competency:

- describe a work activity
- guide the assessor to determine whether the candidate is competent or not yet competent

The ensuing sections of this document comprise of a description of the relevant occupation, trade or job with all the key components of a unit of competency, including:

- a chart with an overview of all units of competency for the relevant occupation, trade or job including the unit codes and the unit of competency titles and corresponding elements;
- the competency standard that includes the unit of competency, unit descriptor, elements and performance criteria, range of variables, curricular content guide and assessment evidence guide;

Level descriptors of NTVQF/ NSQF (BNQF 1-6)

Level & Job classification	Knowledge Domain	Skills Domain	Responsibility Domain
6 Mid-Level Manager/ Sub Assistant Engineer	Comprehensive actual and theoretical knowledge within a specific work or study area with an awareness of the validity and limits of that knowledge, able to analyze, compare, relate and evaluate.	Specialised and wider range of cognitive and practical skills required to provide leadership in the development of creative solutions to defined problems. Communicate professional issues and solutions to the team and to external partners/users.	Work under broad guidance and self-motivation to execute strategic and operational plan/s. Lead lower-level management. Diagnose and resolve problems within and among work groups.
5 Supervisor	Broad knowledge of the underlying, concepts, principles, and processes in a specific work or study area, able to scrutinize and break information into parts by identifying motives or causes.	Broad range of cognitive and practical skills required to generate solutions to specific problems in one or more work or study areas. Communicate practice-related problems and possible solutions to external partners.	Work under guidance of management and self-direction to resolve specific issues. Lead and take responsibility for the work and actions of group/team members. Bridge between management.
4 Highly Skilled Worker	Broader knowledge of the underlying, concepts, principles, and processes in a specific work or study area, able to solve problems to new situations by comparing and applying acquired knowledge.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying the full range of methods, tools, materials and information. Communicate using technical terminology and IT technology with partners and users as per workplace requirements.	Work under minimal supervision in specific contexts in response to workplace requirements. Resolve technical issues in response to workplace requirements and lead/guide a team/ group.
3 Skilled Worker	Moderately broad knowledge in a specific work or study area, able to perceive ideas and abstract from drawing and design according to workplace requirements.	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools. Communicate with his team and limited external partners upholding the values, nature and culture of the workplace	Work or study under supervision with considerable autonomy. Participate in teams and responsible for group coordination.
2 Semi-Skilled Worker	Basic understanding of underpinning knowledge in a specific work or study area, able to interpret and apply common occupational terms and instructions.	Skills required to carry out simple tasks, communicate with his team in the workplace presenting and discussing results of his work with required clarity.	Work or study under supervision in a structured context with limited scope of manipulation
1 Basic Skilled Worker	Elementary understanding of ability to interpret the underpinning knowledge in a specific study area, able to interpret common occupational terms and instructions.	Specific Basic skills required to carry out simple tasks. Interpret occupational terms and present the results of own work within guided work environment/ under supervision.	Work under direct supervision in a structured context with limited range of responsibilities.

Approval of Competency Standard

Name and Designation	Signature
Dulal Krishna Saha Executive Chairman (Secretary) National Skills Development Authority	
Md. Nurul Amin Member (Registration & Certification) Joint Secretary National Skills Development Authority	
Quamrun Naher Siddiqua Member (Coordination & Assessment) Joint Secretary National Skills Development Authority	
Dr. Md. Ziauddin Member (Admin & Finance) Joint Secretary National Skills Development Authority	
Alif Rudaba Member (Planning & Skills Standard) Joint Secretary National Skills Development Authority	

List of Abbreviations

General	
NSDA	National Skills Development Authority
BMET	Bureau of Manpower Employment and Training
B-SEP	Bangladesh Skills for Employment and Productivity
BTEB	Bangladesh Technical Education Board
DTE	Directorate of Technical Education
ILO	International Labour Organization
ISC	Industry Skills Council
BNQF	Bangladesh National Qualifications Framework
NSQF	National Skills Qualifications Framework
PPP	Public Private Partnership
SCVC	Standards and Curriculum Validation Committee
SEIP	Skills for Employment Investment Program
TVET	Technical Vocational Education and Training
UoC	Unit of Competency
Occupation Specific	
ESD	Electro-static discharge
OHS	Occupational health and safety
PCB	Printed circuit board
PPE	Personal protective equipment
SOP	Standard operating procedure

Course Structure

For

NATIONAL CERTIFICATE IN CONSUMER ELECTRONICS (NSQF LEVEL 2)

Sl. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Generic (1 UoCs required)				20
1.	GU003L2V1	Use English in the workplace	2	20
Sector Specific (0 UoCs required)				
Occupation Specific – Compulsory (6 UoCs required)				260
2	OUC E001L2V1	Perform Basic IT Skills	2	30
3	OUC E002L2V1	Install, Repair and Service LCD/LED Television	2	80
4	OUC E003L2V1	Install Solar Panel and Service Solar Battery Charger	2	30
5	OUC E004L2V1	Install Closed Circuit Television (CCTV)	2	30
6	OUC E005L2V1	Install Set Top Box	2	20
7	OUC E006L2V1	Repair and service IPS (Inverter), UPS and AVR	2	70
Total Nominal Learning Hours				280

Units & Elements at a Glance:

Generic Competencies (20 Hours)

Code	Unit of Competency	Elements of Competency	Duration (Hours)
GU003L2V1	Use English in the workplace	<ol style="list-style-type: none">1. Read and understand workplace documents in English2. Write simple routine workplace documents in English3. Listen to conversation in English4. Perform conversation in English	20
Total Hour			20

Sector Specific Competencies (00 Hours)

Occupation Specific Competencies (260 Hours)

Code	Unit of Competency	Elements of Competency	Hours
OUCE001L2V1	Perform basic IT skills	<ol style="list-style-type: none"> 1. Operate computer 2. Work with word processing application 3. Use Internet 4. Identify website and software 5. Download software 6. Use software 	30
OUCE002L2V1	Install, repair and service LCD/LED television	<ol style="list-style-type: none"> 1. Prepare for repair and servicing job 2. Install the LCD/LED TV set 3. Repair dysfunctional LCD/LED TV set 4. Clean and store equipment 	80
OUCE003L2V1	Install solar panel and service solar battery charger	<ol style="list-style-type: none"> 1. Check site conditions, collect tools and raw materials 2. Install the solar panel 3. Service solar battery charger 4. Clean and store tools and equipment 	30
OUCE004L2V1	Install closed circuit television (CCTV)	<ol style="list-style-type: none"> 1. Visit site and understand customer requirement 2. Install the CCTV camera 3. Setup the CCTV surveillance system 4. Coordinate with colleagues and co-workers 	30
OUCE005L2V1	Install set top box	<ol style="list-style-type: none"> 1. Visit site and understand customer requirement 2. Install and repair set top box 3. Coordinate with colleagues and co-workers 4. Clean and store tools and equipment 	20
OUCE006L1V1	Repair and service IPS (Inverter), UPS and AVR	<ol style="list-style-type: none"> 1. Prepare appliances, tools, equipment and workplace 2. Service IPS 3. Service UPS 4. Service AVR 5. Clean and store tools and equipment 	70
Total Hours			260

Generic Competencies

UNIT CODE AND TITLE	GN003L2V1: Use English in the workplace
NOMINAL HOURS	20 Hours
UNIT DESCRIPTOR	This unit specifies the competency required to able to read, write and understand basic English in the workplace.
ELEMENTS OF COMPETENCY	PERFORMANCE CRITERIA <u>Bold and Underlined</u> terms are elaborated in the range of variables
1. Read and understand workplace documents in English	1.1 Workplace documents are read and understood. 1.2 Visual information is interpreted.
2. Write simple routine workplace documents in English	2.1 Simple <u>routine workplace</u> documents are prepared using key words, phrases, simple sentences and <u>visual aids</u> where appropriate. 2.2 Key information is written in the appropriate places in standard forms.
3. Listen to conversation in English	3.1 Listening topic is selected in English language. 3.2 Active listening in English language is demonstrated to the required workplace standard.
4. Perform conversation in English	4.1 Conversation topic is selected in English language. 4.2 Conversation is performed in English with peers, customers and management to the required workplace standard
Range of Variables	
Variable	Range (May include but not limited to):
1. Routine workplace	1.1 Schedules and itineraries 1.2 Agenda 1.3 Simple reports such as progress and incident reports 1.4 Job sheets 1.5 Operational manuals 1.6 Brochures and promotional material 1.7 Visual and graphic materials 1.8 Standards 1.9 OSH information
2. Visual information	2.1 Signs 2.2 maps 2.3 diagrams 2.4 forms 2.5 labels 2.6 graphs 2.7 charts

EVIDENCE GUIDE	
1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 spoken English with workplace fellows 1.2 made reports of workplace documents in English.
2. Underpinning Knowledge	<ul style="list-style-type: none"> 2.1 Read workplace documents in English 2.2 Write simple routine workplace documents in English 2.3 Listen to conversation in English 2.4 Perform conversation in English 2.5 Interaction skills (i.e., teamwork, interpersonal skills, etc.) 2.6 Job roles, responsibilities and compliances
3. Underpinning Skills	<ul style="list-style-type: none"> 3.1 Ability to read and understand workplace documents in English by using appropriate vocabulary and grammar, standard spelling and punctuation. 3.2 Ability to write simple routine workplace documents in English such as: Schedules and agenda, job sheets, operational manuals and brochures and promotional material. 3.3 Ability in active listening in English language is demonstrated to the required workplace standard. 3.4 Ability to perform conversation in English with peers, customers and management to the required workplace standard. 3.5 Work effectively with others. <ul style="list-style-type: none"> a. listening and questioning skills b. ability to follow simple directions
4. Required Attitude	<ul style="list-style-type: none"> 4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.5 Respect of peers and seniors in workplace
5. Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> 5.1 Work place Procedure 5.2 Materials relevant to the proposed activity 5.3 All tools, equipment, material and documentation required. 5.4 Relevant specifications or work instructions
6. Methods of Assessment	<p>Competency must be assessed through:</p> <ul style="list-style-type: none"> 6.1 Written Exam 6.2 Demonstration 6.3 Oral Questioning
7. Context for Assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor

Accreditation Requirements

Training Providers must be accredited by NSDA the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Sector Specific Competencies

Occupation Specific Competencies

Unit Code & Title	OUCCE001L2V1: Perform Basic IT Skills
Nominal Hours	30 Hours
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform basic IT skills. It specifically includes the tasks of operating computer, working with word processing application, using internet, identifying website and software, download software and using software.
Elements of Competency	<u>Performance Criteria</u> <u>Bold & Underlined</u> terms are elaborated in the range of variables
1. Operate computer	<p>1.1 Basic parts of a computer are identified.</p> <p>1.2 Turning on and off technique of a computer is performed.</p> <p>1.3 Working environment, functions and features of operating system is interpreted.</p> <p>1.4 Simple trouble shooting techniques are applied.</p>
2. Work with word processing application	<p>2.1. Word processing application appropriate to perform activity is operated.</p> <p>2.2. Basic typing technique to document is applied.</p> <p>2.3. Word processing techniques to document are employed.</p> <p>2.4. Personal CV writing using suitable word processing techniques is practiced.</p> <p>2.5. Saving and retrieving technique of a document is used.</p>
3. Use Internet	<p>3.1 Web sites are identified for browsing information according to necessity.</p> <p>3.2 User Account is opened as per specified sequence</p> <p>3.3 Login specific E-mail ID as per specified sequence</p> <p>3.4 Information is received and sent in accordance with specified process.</p>
4. Identify website and software	<p>4.1 Required website is identified in accordance with work requirement.</p> <p>4.2 Search engine is used to find information of unidentified website.</p> <p>4.3 <u>Search engine</u> is used to find required software according to requirements</p>
5. Download software	<p>5.1 Required software and files are selected in accordance with work requirement</p> <p>5.2 Files and software are downloaded as per standard procedure</p> <p>5.3 Files and software are saved in specified drive or folder</p>
6. Use software	<p>6.1 Down loaded software is selected as per task requirement</p> <p>6.2 Required software is installed according to the recommended procedures</p> <p>6.3 Software is used as per work requirement following specified help file or manual if necessary.</p>

RANGE OF VARIABLES	
Variable	Range (Included but not limited to):
1. Appropriate Equipment	1.1 Personal computers 1.2 Internet connectivity 1.3 Communication equipment 1.3.1. Hub 1.3.2. Switch 1.3.3. Modem 1.4 Printers
2. Browsing Software	2.1 Internet Explorer 2.2 Mozilla Firefox. 2.3 Opera
3. Search Engine	3.1 Google 3.2 Yahoo 3.3 Twitter

EVIDENCE GUIDE	
1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 operated computer; 1.2 worked with word processing 1.3 received and sent data through internet 1.4 used search engine to download specific software. 1.5 used software as per work requirement
2. Underpinning knowledge	2.1 Computer operation 2.2 Function of word processing software; 2.3 Storage devices and basic categories of memory 2.4 General security 2.5 Difference between website and search engine 2.6 Software installation system 2.7 Fundamental of simulation software
3. Underpinning skills	3.1 Performing computer operation; 3.2 Browsing 3.3 Receiving and sending mails 3.4 Using search engine 3.5 Applying techniques of down loading software 3.6 Installing software 3.7 Using software
4. Required Attitude	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Tidiness and timeliness 4.4 Respect of peers and seniors in workplace
5. Resource implications	The following resources must be provided. 5.1 Workplace (simulated or actual) 5.2 IT tools 5.3 Computer/laptop/notebook

	5.4 Software 5.5 Internet 5.6 Projector 5.7 Stationary 5.8 Learning manual
6. Method of assessment	Competency must be assessed: by- 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning/Interview
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by NSDA, the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Unit Code and Title	OUCE002L2V1: Install, Repair and Service LCD/LED Television
Nominal Hours	80 Hours
Unit Descriptor	This unit covers the knowledge skills and attitudes required to Install, repair and service LCD/LED television. It specifically includes the tasks of preparing for repair and servicing job, installing the LCD/LED TV set and repair dysfunctional LCD/LED TV set.
Elements of competency	Performance Criteria
	<u>Bold & Underlined</u> words are elaborated in the range of variables
1. Prepare for repair and servicing job	<p>1.1 Safe work practices observed and <u>personal protective equipment (PPE)</u> worn as required for the work place requirement.</p> <p>1.2 Appropriate equipment is selected according to tasks requirements.</p> <p>1.3 <u>Tools, equipment and materials</u> and work place are prepared according to specification and tasks.</p> <p>1.4 Power supply and component needed to complete the work are prepared.</p>
2. Install the LCD/LED TV set	<p>2.1 Types and design of television set is identified;</p> <p>2.2 Packages are removed and accessories are checked;</p> <p>2.3 Tools and equipment are selected for installation</p> <p>2.4 TV set is fixed at appropriate location</p> <p>2.5 TV set's function is checked and ensured;</p> <p>2.6 Concealed wiring and made connection of power supply, set top boxes, home theatre systems to the TV set</p> <p>2.7 Test equipment and tools such as multimeter, volt -ohmmeter are used;</p> <p>2.8 Operational apps. are identified;</p> <p>2.9 Operational apps. are interpreted;</p> <p>2.10 Operational apps. are installed (if necessary);</p>
3. Repair dysfunctional LCD/LED TV set	<p>3.1 Basic earthing test and volt ampere test are carried out;</p> <p>3.2 Ensured that the fault is internal before disassembling the unit</p> <p>3.3 TV set is disassembled;</p> <p>3.4 Symptoms is detected</p> <p>3.5 <u>Faulty parts</u> are identified;</p> <p>3.6 Components/parts are selected and collected;</p> <p>3.7 Components/parts are replaced;</p> <p>3.8 Measuring tools are operated and equipment are used to repair TV set</p> <p>3.9 Television set is reassembled</p> <p>3.10 Function of TV is tested;</p>

4. Clean and store measuring and testing equipment.	4.1 Tools and equipment are cleaned and maintained as per instruction manual 4.2 Tools and equipment are stored safely in appropriate location according to standard workshop procedures 4.3 Unsafe or faulty equipment are identified and marked for repair after use according to current procedures
---	--

Range of Variables

Variable	Range (Included but not limited to):
1. PPE.	1.1 Mask 1.2 Gloves 1.3 Safety shoes 1.4 Apron 1.5 Goggles and safety glasses 1.6 Smoke absorber 1.7 Helmet
2. Tools, equipment and materials	2.1 Tools 2.1.1 Screwdrivers 2.1.2 Wrenches 2.1.3 Allen wrench 2.1.4 Allen keys 2.1.5 Soldering iron 2.1.6 De-soldering tools 2.1.7 Multi-testers (analog/digital) 2.1.8 Utility knife/stripper 2.1.9 Pliers 2.1.10 Cleaning brush 2.1.11 High-grade magnifying glass (with lamp) 2.2 Equipment: 2.2.1 Variable power supply 2.2.2 Variable transformer 2.2.3 Hot air soldering station 2.2.4 Function/signal generator 2.2.5 Oscilloscope (digital) 2.2.6 Assorted electronic sensors
3. Materials	3.1 Soldering wire 3.2 SMD soldering paste 3.3 Wires (stranded/solid/hook-up) 3.4 Assorted electronic components

4. Faulty parts	<ul style="list-style-type: none"> 4.1 Ocell/Panel 4.2 T-con Board 4.3 Main Board and 4.4 Power Board 4.5 Remote control
EVIDENCE GUIDE	
1. Critical aspects at competency.	<p>Assessment required evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 prepared for repair and servicing job 1.2 interacted with the customer 1.3 installed the TV set 1.4 repaired dysfunctional CRT TV set 1.5 repaired dysfunctional Flat Panel Display (FPD)TV set
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1. Different section of a TV and their functioning 2.2. Basic troubleshooting knowledge with respect to LCD/ LED TV set 2.3. Basic fundamental of LCD/ LED television set 2.4. Inspect all electrical and electronic parts of the unit 2.5. Basic troubleshooting knowledge with respect to LED/ LCD TV set
3. Underpinning Skills	<ul style="list-style-type: none"> 3.1 Preparing for repair and servicing job 3.2 Installing the TV set 3.3 Repairing dysfunctional LCD/LEDTV set 3.4 Repairing remote control 3.5 Installing software
4. Required Attitude	<ul style="list-style-type: none"> 4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Tidiness and timeliness 4.4 Respect of peers and seniors in workplace
5. Resource Implication.	<p>The following resources must be provided.</p> <ul style="list-style-type: none"> 5.1 Workplace 5.2 Materials relevant to the proposed activity 5.3 All tools, equipment, material and documentation required 5.4 Relevant specifications or work instructions
6. Method assessment.	<p>Competency must be assessed by-</p> <ul style="list-style-type: none"> 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning/Interview
7. Context assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor.

Accreditation Requirements

Training Providers must be accredited by NSDA, the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.

Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Unit Code & Title	OUCE003L2V1 – Install Solar Panel and Service Solar Battery Charger
Nominal Hours	30 Hours
Unit Descriptor	This unit covers knowledge, skill and attitude to install solar panel and service solar battery charger. It specifically includes the tasks of check site conditions, collect tools and raw materials, install the solar panel and servicing solar battery charger.
Elements of Competency	Performance Criteria <u>Bold & Underlined</u> terms are elaborated in the range of variables
1. Check site conditions, collect tools and raw materials	1.1 Safe work practices observed and personal proactive equipment (PPE) worn as required for the work place requirement. 1.2 Work requirement is identified; 1.3 Site condition is checked out and assessed; 1.4 Installation requirement is identified; 1.5 <u>Required tools</u> materials for installation is collected; 1.6 Quality material usage is ensured; 1.7 Appropriate handling mechanism of materials is ensured;
2. Install the solar panel	2.1. Installation and material usage procedure is identified; 2.2. Mounting requirements is assessed; 2.3. Panel mounting and inclination and angle of tilt is set as per standard; 2.4. Solar panel is installed as per standard; 2.5. System is connected as per diagram; 2.6. Function of the system is checked; 2.7. Completion of work is documented and reported; 2.8. Quality and safety procedures are followed;
3. Service solar battery charger	3.1 Major <u>components of solar battery charger</u> are identified; 3.2 Basic tests are performed for identifying faults; 3.3 Solar battery charger is dismantled for internal tests/servicing/repairs according to manufacturer’s instructions; 3.4 Continuity of wire/switch/protective devices are checked by using specified test 3.5 Visual mechanical defects are inspected such as, loose connection, short circuit, insulation and temperatures. 3.6 Windings are checked by using specified test instruments to detect defects. 3.7 Faulty components are diagnosed; 3.8 Faulty parts are repaired/replaced as per diagnosed fault. 3.9 Winding is rewind if wind is burnt; 3.10 Solar battery charger is re assembled and checked in test bench as per standard

4. Clean and store tools and equipment	4.1 Waste materials are disposed of in accordance with environmental requirements. 4.2 Cleaning of equipment is performed in accordance with standard procedures 4.3 Tools and equipment are stored safely in appropriate location according to standard place procedures
--	---

RANGE OF VARIABLES

Variables	Range (Included but not limited to):
1. Required tools	1.1 Screw driver 1.2 Inspection fixtures 1.3 Wire cutter 1.4 Pliers 1.5 Tester 1.6 Spanner
2. components of solar battery charger	2.1 Solar panel. 2.2 Boost Converter 2.3 Microcontroller 2.4 Inductor 2.5 Capacitor 2.6 Diode. 2.7 MOSFET 2.8 Sensor 2.9 Battery (5v – 14V) 2.10 LED lights.

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 checked site conditions, 1.2 collected tools and raw materials 1.3 installed the solar panel 1.4 performed servicing of solar battery charger 1.5 ensure safety at workplace
2. Underpinning knowledge	2.1 Basics on solar energy and power generation systems 2.2 Use and handling procedure of solar panels 2.3 Operation of solar system 2.4 Function solar battery charger
3. Underpinning skills	3.1 Installing Panel 3.2 Using Tools and Machines 3.3 Handling Safety Equipment 3.4 Servicing solar battery charger

4. Required Attitude	<ul style="list-style-type: none"> 4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Tidiness and timeliness 4.4 Respect for rights of peers and seniors in workplace
5. Resource implications	<p>The following resources must be provided.</p> <ul style="list-style-type: none"> 5.1 Different types of Solar panels 5.2 Screw driver, inspection fixtures, wire cutter, pliers, tester, spanner 5.3 Different types of Battery 5.4 Solar Battery Charger
6. Method of assessment	<p>Competency must be assessed by-</p> <ul style="list-style-type: none"> 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning/Interview
7. Context of assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements Training Providers must be accredited by NSDA, the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Unit Code & Title	OUCCE004L2V1 – Install Closed Circuit Television (CCTV)
Nominal Hours	30 Hours
Unit Descriptor	This unit covers knowledge, skill and attitude to install closed circuit television (CCTV). It specifically includes the tasks of visiting site and understanding customer requirement, installing the CCTV camera, setup the CCTV surveillance system and coordinating with colleagues and co-workers.
Elements of Competency	Performance Criteria <u>Bold & Underlined</u> terms are elaborated in the range of variables
1. Visit site and understand customer requirement	1.1 Interacted with customer to assess their requirement; 1.2 Visited site to understand infrastructure required; 1.3 Site condition and requirements are assessed; 1.4 Possible solutions are suggested; 1.5 CCTV system to be installed is decided; 1.6 Productivity and quality standard is achieved;
2. Install the CCTV camera	2.1 Safe work practices observed and personal proactive equipment (PPE) worn as required for the work place requirement. 2.2 Hardware required for installation is procured; 2.3 Hardware is tested before installation as per standard; 2.4 Cables are connected as per diagram; 2.5 Cameras are setup and installed; 2.6 <u>Appropriate tools</u> and equipment are used for installation 2.7 All safety rules, policies and procedures are followed; 2.8 Completion of work is documented and reported; 2.9 Quality and safety procedures are followed;
3. Setup the CCTV surveillance system	3.1 CCTV camera and DVR are connected with system as per diagram; 3.2 CCTV system is setup as per standard; 3.3 Ensured system functioning 3.4 Demo is performed; 3.5 Installation is completed and reported 3.6 Interacted with customer 3.7 Interacted with Supervisor 3.8 Achieved productivity and quality as per company's norms
4. Coordinate with colleagues and co-workers	4.1 Interacted with supervisor or superior; 4.2 Coordinated with colleagues and others; 4.3 Potential areas of disruptions to work process is reported;

5. Clean and store tools and equipment	<p>5.1 Waste materials are disposed of in accordance with environmental requirements.</p> <p>5.2 Cleaning of equipment is performed in accordance with standard procedures</p> <p>5.3 Tools and equipment are stored safely in appropriate location according to standard place procedures</p>

RANGE OF VARIABLES	
Variables	Range (Included but not limited to):
1. Appropriate tools	<p>1.1 Screw driver</p> <p>1.2 Inspection fixtures</p> <p>1.3 Wire cutter</p> <p>1.4 Pliers</p> <p>1.5 Tester</p> <p>1.6 Spanner</p>

EVIDENCE GUIDE	
1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 visited site and understood customer requirement</p> <p>1.2 installed the CCTV camera</p> <p>1.3 setup the CCTV surveillance system and</p> <p>1.4 coordinated with colleagues and co-workers.</p>
2. Underpinning knowledge	<p>2.1 Different types of electronic surveillance products and functionalities</p> <p>2.2 Functions of electrical and mechanical parts/ modules</p> <p>2.3 Specification and the procedures to be followed for setting up the system</p> <p>2.4 Different type of cables used for data transmission and power transmission</p> <p>2.5 Power requirement of different CCTV related equipment</p> <p>2.6 Video recording of footage – analog and digital</p> <p>2.7 Different types of cameras available in the market</p> <p>2.8 Camera specifications such as focus, lens type, zoom</p> <p>2.9 Controls of different options in camera such as rotation, speed of movement</p> <p>2.10 Voltage and power requirement for different hardware devices</p> <p>2.11 Integration of hardware to setup the system</p> <p>2.12 Parameters and specification for different types of system integration</p> <p>2.13 Accessing image from remote locations</p> <p>2.14 CCTV monitoring and control over IP network / Internet</p>
3. Underpinning skills	<p>3.1 Installing and repairing Skills</p> <p>3.2 Hardware and Software operating skills</p> <p>3.3 Networking, Servers and storage hardware related skills</p>

	3.4 Using tools and machines
4. Required Attitude	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Tidiness and timeliness 4.4 Respect for rights of peers and seniors in workplace
5. Resource implications	The following resources must be provided. 5.1 Different types of CCTV Camera 5.2 DVR, Monitor, Key board mouse & their hardware 5.3 Storage device 5.4 Diagonal cutters, screwdrivers, crimp tools, knife for cabling and camera mounting
6. Method of assessment	Competency must be assessed by- 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning/Interview
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements Training Providers must be accredited by NSDA, the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Unit Code & Title	OUC005L2V1 – Install Set Top Box
Nominal Hours	20 Hours
Unit Descriptor	This unit covers knowledge, skill and attitude to install set top box. It specifically includes the tasks of visiting site and understanding customer requirement, installing and repairing set top box and coordinating with colleagues and co-workers.
Elements of Competency	Performance Criteria <u>Bold & Underlined</u> terms are elaborated in the range of variables
1. Visit site and understand customer requirement	1.1 Interacted with customer to assess their requirement; 1.2 Visited site to understand infrastructure required; 1.3 Site condition and requirements are assessed; 1.4 Possible solutions are suggested; 1.5 Set top box to be installed is decided; 1.6 Productivity and quality standard is achieved;
2. Install and repair set top box	2.1 Safe work practices observed and personal proactive equipment (PPE) worn as required for the work place requirement. 2.2 <u>Hardware required</u> for installation is procured; 2.3 Hardware is tested before installation as per standard; 2.4 Cables are connected as per diagram; 2.5 Set top box is installed at customer’s premises; 2.6 <u>Appropriate tools</u> and equipment are used for installation 2.7 All safety rules, policies and procedures are followed; 2.8 Completion of work is documented and reported; 2.9 Quality and safety procedures are followed;
3. Coordinate with colleagues and co-workers	3.1 Interacted with supervisor or superior; 3.2 Coordinated with colleagues and others; 3.3 Potential areas of disruptions to work process is reported;
4. Clean and store tools and equipment	4.1 Waste materials are disposed of in accordance with environmental requirements. 4.2 Cleaning of equipment is performed in accordance with standard procedures 4.3 Tools and equipment are stored safely in appropriate location according to standard place procedures

RANGE OF VARIABLES	
Variables	Range (Included but not limited to):
1. Appropriate tools	1.1 Screw driver 1.2 Inspection fixtures 1.3 Wire cutter 1.4 Pliers 1.5 Tester 1.6 Spanner
2. Hardware required	2.1. Set top box 2.2. Dish 2.3. Television 2.4. Drilling machine 2.5. Satellite meter 2.6. Multi-meter 2.7. Angle meter 2.8. Lead tester 2.9. Spanner 2.10. Cutter 2.11. RF strength meter 2.12. QAM meter

EVIDENCE GUIDE	
1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 visited site and understood customer requirement 1.2 installed and repaired set top box 1.3 coordinated with colleagues and co-workers.
2. Underpinning knowledge	2.1 Basics of Geo stationery satellite and Other Communication Satellite 2.2 Azimuth, elevation and polarisation 2.3 Spectrum utilization 2.4 Optimum signal strength/ signal quality for good reception 2.5 Basics of input/output functions and block diagram of the set top box 2.6 Functions of the set top box and remote control 2.7 Structure of cable, parameters and the implications on signal 2.8 Basic functioning of tuners 2.9 Functioning of Low Noise Block Down Convertor (LNBC) 2.10 Basics of digital signals and difference in analogue and digital 2.11 Transmission of television signals and functioning of television sets 2.12 Specifications of different kind of inputs available on TV sets such as RF, AV, RGB, VGA, USB and HDMI KB13. digital signal processing chain including CAS and SMS
3. Underpinning skills	3.1 Installing and repairing Skills 3.2 Hardware and Software operating skills 3.3 Set top box installation related skills

	3.4 Using tools and machines
4. Required Attitude	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Tidiness and timeliness 4.4 Respect for rights of peers and seniors in workplace
5. Resource implications	The following resources must be provided. 5.1 Set top box 5.2 Dish 5.3 Television 5.4 Drilling machine, satellite meter, multi-meter, Angle meter 5.5 Lead tester, spanner, cutter 5.6 RF strength meter, QAM meter
6. Method of assessment	Competency must be assessed by- 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning/Interview
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements Training Providers must be accredited by NSDA, the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Unit Code and Title	OUCE006L2V1 - Repair and service IPS (Inverter), UPS and AVR
Nominal Hours	70 Hours
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to repair and service basic domestic electronic appliances. It specifically includes the tasks of servicing UPS, IPS and AVR in the workplace.
Elements of Competency	PERFORMANCE CRITERIA <u>Bold & Underlined</u> terms are elaborated in the range of variables
1. Prepare appliances, tools, equipment and workplace	<p>1.1 Safe work practices observed and personal protective Equipment are (PPE) worn as required for the work performed.</p> <p>1.2 Assembly workplace is prepared in accordance with <u>OH&S policies and procedures.</u></p> <p>1.3 <u>Responsible person</u> is consulted for effective and proper work coordination.</p> <p>1.4 Required <u>materials, tools and equipment</u> are prepared and checked in accordance with work place requirement.</p> <p>1.5 <u>Domestic Electronics Appliances</u> are needed to complete the work are prepared and obtained according to requirements.</p>
2. Service IPS	<p>2.1. <u>Major components of IPS</u> are identified;</p> <p>2.2. Basic tests are performed for identifying faults;</p> <p>2.3. IPS are dismantled for internal tests/servicing/repairs according to manufacturer's instructions;</p> <p>2.4. Continuity of wire/switch/protective devices are checked by using specified test</p> <p>2.5. Visual mechanical defects are inspected such as, loose connection, short circuit, insulation and temperatures.</p> <p>2.6. Windings are checked by using specified test instruments to detect defects.</p> <p>2.7. Faulty components are diagnosed;</p> <p>2.8. Faulty parts are repaired/replaced as per diagnosed fault.</p> <p>2.9. Winding is rewind if wind is burnt;</p> <p>2.10. IPS is re assembled and checked in test bench as per standard</p>
3. Service UPS	<p>3.1 <u>Major components of UPS</u> are identified;</p> <p>3.2 Basic tests are performed for identifying faults;</p> <p>3.3 UPS are dismantled for internal tests/servicing/repairs according to manufacturer's instructions;</p> <p>3.4 Continuity of wire/switch/protective devices are checked by using specified test</p> <p>3.5 Visual mechanical defects are inspected such as, loose connection, short circuit, insulation and temperatures.</p> <p>3.6 Windings are checked by using specified test instruments to detect defects.</p> <p>3.7 Faulty components are diagnosed;</p>

	<p>3.8 Faulty parts are repaired/replaced as per diagnosed fault.</p> <p>3.9 Winding is rewind if wind is burnt;</p> <p>3.10 UPS is re assembled and checked in test bench as per standard</p>
4. Service AVR	<p>4.1 Major components of AVR are identified;</p> <p>4.2 Basic tests are performed for identifying faults;</p> <p>4.3 AVR's are dismantled for internal tests/servicing/repairs according to manufacturer's instructions;</p> <p>4.4 Continuity of wire/switch/protective devices are checked by using specified test</p> <p>4.5 Visual mechanical defects are inspected such as, loose connection, short circuit, insulation and temperatures.</p> <p>4.6 Windings are checked by using specified test instruments to detect defects.</p> <p>4.7 Faulty components are diagnosed;</p> <p>4.8 Faulty parts are repaired/replaced as per diagnosed faults.</p> <p>4.9 Winding is rewind if wind is burnt;</p> <p>4.10 AVR is re assembled and checked in test bench as per standard</p>
5. Clean and store tools and equipment	<p>5.1 Cleaning of tools and equipment is performed in accordance with work site procedures.</p> <p>5.2 Tools and equipment are stored safely in appropriate location according to standard procedures</p>

RANGE OF VARIABLES

Variables	Range (Included but not limited to):
1. OHS policies and procedures	<p>1.1 Hazardous and risk assessment mechanisms.</p> <p>1.2 Implementation of safety regulations.</p> <p>1.3 Safety training.</p> <p>1.4 Safety systems incorporating.</p> <p>1.5 Work clearance procedures</p> <p>1.6 Isolation procedures.</p> <p>1.7 Use of protective equipment and clothing</p>
2. Responsible person	<p>2.1 Competent Authority</p> <p>2.2 Service supervisor</p>

3. Materials, tools and equipment	Tools 3.1 Soldering iron 3.2 Screwdriver (assorted) 3.3 Utility knife/stripper 3.4 Pliers (assorted) 3.5 Test jig 3.6 Work bench with mirror 3.7 Blower machine 3.8 Insulation floor mat 3.9 Magnifying glass with stand 3.10 Cleaning brush 3.11 Soldering sucker	Materials 3.12 Lead-free solder 3.13 Cleaning agent 3.14 Wires 3.15 Assorted electronic components 3.16 Insulation floor mat Equipment 3.17 Analogue oscilloscope 3.18 Digital oscilloscope 3.19 Digital multimeter 3.20 Pattern Generator 3.21 AVO meter
4. Domestic Electronics Appliances	4.1 IPS 4.2 UPS 4.3 AVR	
5. Components of IPS	5.1 Transformer 5.2 Display 5.3 Switch 5.4 Cooling Fan 5.5 Input Output Channel 5.6 MOSFET 5.7 Transistor 5.8 IC 5.9 Programmable IC 5.10 Capacitors 5.11 Resistors 5.12 Rectifier Diode 5.13 Zener Diode 5.14 Hit Sink	
6. Uninterruptable Power Supply (UPS)	6.1 Rectifier/Charger block 6.2 UPS Batteries; 6.3 Inverter; and 6.4 Static Bypass Switch.	
7. Components of AVR	7.1 Buck Bust Transformer 7.2 Auto Transformer 7.3 Input Output Channel 7.4 DC Motor 7.5 Carbon Brush 7.6 Limit Switch 7.7 Input Breaker 7.8 Control Circuit 7.9 CM Transformer 7.10 Resistor 7.11 Transistor 7.12 Capacitor 7.13 Rectifier Diode 7.14 Zener Diode	

	7.15 Bridge Diode 7.16 Relay 7.17 LED 7.18 Variable Resistor (VR) 7.19 IC
--	---

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment required evidence that the candidate: 1.1 prepared appliances, tools, equipment and workplace 1.2 performed servicing of UPS; 1.3 performed servicing of IPS; 1.4 performed servicing of AVR; 1.1 applied safety rules and procedure
2. Underpinning knowledge	2.1 Operations of UPS, IPS and AVR 2.2 Symptoms and faults of UPS, IPS and AVR; 2.3 Remedies of faults;
3. Underpinning skills	3.1 Preparing appliances, tools, equipment and workplace 3.2 Performing servicing of UPS: 3.3 Performing servicing of IPS: 3.4 Performing servicing of AVR: 3.5 Conducting testing devices.
4. Required Attitude	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Tidiness and timeliness 4.4 Respect of peers and seniors in workplace
5. Resource implications	The following resources must be provided. 5.1 Workplace 5.2 Materials relevant to the proposed activity 5.3 All tools, equipment, material and documentation required 5.4 Relevant specifications or work instructions
6. Method of assessment	Competency must be assessed by- 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning/Interview
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor

Accreditation Requirements

Training Providers must be accredited by NSDA, the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Development of Competency Standard

The Competency Standards for National Skills Certificate in **Consumer Electronics** Standard is developed by NSDA on 22-24 November, 2021.

Respectable members:

1.	Dulal Krishna Saha, Executive Chairman (Secretary), National Skills Development Authority (NSDA)	Chairperson
2.	Alif Noor, Deputy Manager, TVET and Skills, UCEP, Bangladesh	Member
3.	Md, Abdullah Al Mabud, Specialist (LMD), BTEB, Dhaka	Member
4.	Md. Shawkat Ali Miah, Senior Instructor (Electronics), BK-TTC, DHaka	Member
5.	Saida Momtaz Zobaida Iqbal, Instructor and HOD (Electronics), Dhaka Mohila Polytechnic Institute,	Member
6.	Md. Abdul Quiyum, Instructor (Electronics), Bangla-German Technical Training Centre, Dhaka	Member
7.	Shushil Rishi, Senior Instructor (Electronics), SOS Vocational Taining Centre, Dhaka	Member
8.	Md. Moniruzzaman, Production Manager, Singer Bangladesh Ltd. Dhaka	Member
9.	Mst. Shefa, Line Engineer, Benli Electronics Ltd. Gazipur,	Member
10.	Md. Ahsanuzzaman, PICO Technology, Mirpur, Dhaka	Member
11.	Md. Habibur Rahman, MD, HB Engineering Ltd. Dhaka	Member
12.	Md. Abdur Razzaque, Specialist, NSDA,	Member

Validation of Competency Standard by Standard and Curriculum Validation Committee (SCVC)

The Competency Standards for National Skills Certificate in **Consumer Electronics** Standard is validated by SCVC on 09-10 January, 2022.

Respectable members of the SCVC:

1.	Md. Abdur Razzaque, Chairman, LEISC, 38 Tipu Sultan Road, Dhaka-1203, Mobile: 01819-245588, Email: smc3155@gmail.com	Chairperson
2.	Md. Nur-A-Alam Sarker, Deputy Manager (Service), Rangs Electronics Ltd. Sony Service Centre, Mirpur, Dhaka, Cell: 01715-009233, Email: nurasarker@gmail.com	Member
3.	Mihir Mustafy, Deputy Manager (Service), Rangs Industries Ltd. Rangs Bhaban, Bijoy Sarani, Dhaka, Cell: 01714-934644, Email: mustafy@rancon.com.bd	Member
4.	Motiur Rahman, Engineer Maintenance, TVS Auto Bangladesh Ltd. Cell: 01714-638630, Email: riatdnj@gmail.com	Member
5.	Sushil Rishi, Senior Instructor, SOS Vocational Training Centre, Dhaka, Cell: 01718-724397, Email: rishisushil68@gmail.com	Member
6.	Md. Anowar Hossain, Sales and senior Service Engineer, Micro Speed Electronics, Mirpur, Dhaka, Cell: 01738-237688, Email: anowar6664@gmail.com	Member
7.	Md. Shawkat Ali Miah, Senior Instructor (Electronics), BK-TTC Mirpur, Dhaka Email: shawkat.ali.mia@gmail.com , Cell: 01716-681577	Member
8.	Md. Abdur Razzaque, Specialist, NSDA, Cell: 01742734313, Email: razzaque159@gmail.com	Member

Copyright

This Competency Standard for **Consumer Electronics** is a document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the document for providing training consistent with the requirements of industry in order for individuals who graduated through the established standard via competency-based assessment to be suitably qualified for a relevant job.

This document is owned by the National Skills Development Authority (NSDA) of the People's Republic of Bangladesh, developed in association with **Light Engineering Industry Skills Councils (LEISC)**

Public and private institutions may use the information contained in this standard for activities benefitting Bangladesh.

Other interested parties must obtain permission from the owner of this document for reproduction of information in any manner, in whole or in part, of this Competency Standard, in English or other language.

This document is available from:

National Skills Development Authority (NSDA)

423-428 Tejgaon Industrial Area, Dhaka-1215

Phone: +880 2 8891091; Fax: +880 2 8891092;

E-mail: ecnsda@nsda.gov.bd

Website: www.nsd.gov.bd