







## SATELLITE DISH INSTALLER



TRAINER GUIDE

Version 1 - October, 2019





#### Published by

National Vocational and Technical Training Commission Government of Pakistan

#### Headquarter

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan www.navttc.org

#### Responsible

Director General Skills Standard and Curricula, National Vocational and Technical Training Commission National Deputy Head, TVET Sector Support Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Layout & design SAP Communications

#### Photo Credits TVET Sector Support Programme

#### **URL links**

Responsibility for the content of external websites linked in this publication always lies with their respective publishers. TVET Sector Support Programme expressly dissociates itself from such content.

This document has been produced with the technical assistance of the TVET Sector Support Programme, which is funded by the European Union, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs)s and private sector organizations.

Document Version October, 2019 Islamabad, Pakistan

## SATELLITE DISH INSTALLER



TRAINER GUIDE

Version 1 - October, 2019

## Introduction

Competence-based training helps to bridge the gap between what is taught in training and what tasks will be performed on the job. Training trainees to perform actual job functions helps to ensure that future front-line workers have the skills, knowledge and abilities required to perform their jobs properly, safely and effectively. In addition to competence-based training, assessment based on the performance of actual work competencies helps to ensure that:

- trainees are performing their work tasks as safely as possible
- performance gaps are recognized prior to serious incidents
- training can be implemented to improve competence.

There are significant benefits to competence-based training:

### 1. Cost effectiveness

Since training activities and assessments in a competence-based approach are goal-oriented, trainers focus on clearly defined areas of skills, knowledge and understanding that their own industry has defined in the competence standards. At the same time, trainees are more motivated to learn when they realize the benefits of improved performance.

### 2. Efficiency

The transfer gap between the training environment and working on the job is reduced substantially in a competence-based approach. This is because training and assessment are relevant to what needs to be done on the job. As a result, it takes less time for trainees to become competent in the required areas. This, in turn, contributes to improved efficiency where training and assessment are concerned.

### 3. Increased productivity

When trainees become competent in the competence standards that their own industry has defined, when they know what the performance expectations are and receive recognition for their abilities through successful assessments, they are likely to be more motivated and experience higher job satisfaction. The result is improved productivity for organizations. The communication and constructive feedback between future employers and employees will improve as a result of a competence-based approach, which can also increase productivity.

### 4. Reduced risk

Using a competence-based approach to training, development, and assessment, employers are able to create project teams of people with complementary skills. A trainee's record of the skills, knowledge and understanding relating to the competence standards they have achieved can be used by a future employer to identify and provide further relevant training and assessment for new skills areas. Competence standards can shape employee development and promotional paths within an organization and give employees the opportunity to learn more competencies beyond their roles. It can also provide organizations with greater ability to scale and flex as needed, thereby reducing the risk they face.

## 5. Increased customer satisfaction

Employees who have been trained and assessed using a competence-based approach are, by the definition of the relevant competence standards, able to perform the required tasks associated with a job. The knock-on effect is that, in service-related industries, they are able to provide high service levels, thereby increasing customer satisfaction. In production or manufacturing industries, they are able to work closely to industry standards in a more effective and efficient way.

## Lesson plans

This manual provides a series of lesson plans that will guide delivery of each module for the *Satellite Dish Installer* qualification. It is important for trainers to be flexible and be ready to adapt lesson plans to suit the context of the subject and the needs of their trainees.

Good teachers acknowledge that CBT means each and every trainee in the class learns at a different speed. The good teacher is prepared to throw aside the day's lesson plan and do something different (and unplanned) for the class even if it means 'writing' a lesson plan for each trainee to match their learning pace for that day or week.

Learning by doing is different from learning theory and then applying it. To learn to do something, trainees need someone looking over their shoulder saying 'it's not quite like that, it's like this', 'you do it like this because ...', or even 'tell me why you chose to do it like this?'.

In this way, trainees learn that theoretical knowledge is meaningless if it is not seen in the context of what they are doing. In other words, if a trainee doesn't know why they do something, they will not do it competently (skills underpinned by knowledge = competent performer).

This is how a *Satellite Dish Installer* acquires a practical grasp of the standards expected. It's not by learning it in theory, but because those standards are acquired through correction by people who show what the standards are, and correct the trainee where they do not meet those standards, and where they repeat it correction until they have internalised those standards.

## **Demonstration of skill**

Demonstration or modeling a skill is a powerful tool, which is used, in vocational training. The instructions for trainers for demonstration are as under:

- a) Read the procedure mentioned in the Trainer Guide for the relevant Learning Unit before demonstration.
- b) Arrange all tools, equipment and consumable material, which are required for demonstration of a skill.
- c) Practice the skill before demonstration to trainees, if possible.
- d) Introduce the skill to trainees clearly at the commencement of demonstration.
- e) Explain how the skill relates to the skill(s) already acquired and describe the expected results or show the objects to trainees.
- f) Carry out demonstration in a way that can be seen by all trainees.
- g) Use the same tools and materials that the learner will be using.
- h) Go through EACH of the steps involved in performing the skill.
- i) Go SLOWLY describe each step as it is completed.
- j) Encourage the learners to move around and watch what you are doing from a number of different angles.

- k) Identify critical or complex steps, or steps that involve safety precautions to be followed.
- I) Explain theoretical knowledge where applicable and ask questions to trainees to test their understanding.
- m) Try to involve the learners: Ask them questions about why they think the process may work that way.
- n) Repeat critical steps in demonstration, if required.
- o) Summarize the demonstration by asking questions to trainees.

Involvement in the process (actively seeing) is important at this stage. When you work on getting involved, getting people to participate, you make them a part of what is happening. Questions for clarification or explanation are important throughout the demonstration. It is up to the learners to ask questions about things they do not understand, but it is also important for trainers to seek out and elicit questions from learners. A trainer may need to do repeated demonstrations of difficult or complex skills

## Overview of the program

**Course:** Satellite Dish Installer, Level 1

### **Course Overview:**

The purpose of the training is to provide skilled manpower to improve the existing capacity of Electronics sector. This training will provide the requisite skills to the trainees to Install Satellite Dish. It will enable the participants to meet the challenges in the field of Satellite Dish industry. Further, to improve the skill level of the technician and prepare them for the Electronics industry to meet the market competition nationally and internationally.

The core purpose of this qualification is to produce employable Satellite Dish Installer who could Install Satellite Dish according to national and international standards. In addition this qualification will prepare unemployable youth to employee in this sector.

Module	Learning Unit	Duration
Module 1: Maintain Tools and Equipment Aim: The objective of this module is to provide skills and knowledge required to Arrange Tools & Equipment, Maintain Tool Kit, Insulate Tools and Equipment, calibrate measuring instruments and Manage Inventory of tools and equipment.	LU1: Arrange Tools & Equipment LU2: Maintain Tool Kit LU3: Insulate tools and equipment LU4: Calibrate measuring instruments LU5: Manage inventory of tools and equipment	50 hours

### Total Course Duration: 50 hours

	FORMAT FOR LESSON PLAN		
Module 1: M	aintain Tools and Equipment		
Learning Uni	it CU4: Calibrate measuring instruments		
Methods	Key Notes	Media	Time
White Board	Tools, materials and equipment used for Calibrating measuring instruments		10 Hrs
Duster Multimedia Projector			
	Introduction		
	This session will introduce learners to the tools, techniques and material used for Calibrating measuring instruments, using presentation, demonstration, question and answer, and practical skills development.		
	Main Body	•	
	<ul> <li>Check calibration status of measuring tools.</li> <li>Perform calibration of measuring tools as per standards.</li> <li>Record calibration test results.</li> </ul>		
	Conclusion	•	
	To conclude the session, review the tools, techniques and material used for Calibrating measuring instruments. Give learners the opportunity to ask questions.		
	<u>Assessment</u> Question and answer, discussion groups with feedback, observation of practice skills development		
	Tot	tal time:	10 Hrs

# SATELLITE DISH INSTALLER



Module-1 LEARNER GUIDE

Version 1 - October, 2019

## Trainer's guidelines

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
LU1: Arrange Tools Equipment	<ul> <li>Deliver an illustrated presentation on Arranging Tools &amp; Equipment. Ensure that the presentation focuses on the following: <ol> <li>Identify tools and equipment</li> <li>Prepare list of tools and equipment as per requirement</li> <li>Check specifications of measuring Instruments</li> <li>Collect tools and equipment from store</li> </ol> </li> <li>Learners need to devise 10 quiz questions with answers based on Arranging Tools &amp; Equipment. They must make sure their questions cover key topics for Arranging Tools &amp; Equipment.</li> <li>Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about Arranging Tools &amp; Equipment.</li> <li>For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner's answer was not wholly correct.)</li> </ul>	Lab/ Field	Learner guide Multi-media projector Handouts Videos <b>Tools and Equipment</b> Blower Chisel Drill bits Ellen key set Files Glasses (goggles) Gloves Grip plier Hacksaw Hammers Marking punch Marking punch Marking punch Measuring tape Micrometers Nose plier Open spanner set Phase tester Plier Ring spanner set

earning Unit	Suggested Teaching/	Delivery Context	Media
	Learning Activities		
	The scorekeeper records 1 mark for a correct answer under the appropriate team's score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on. Total the scores at the end of the quiz to see which team won. After the quiz, collect learners' question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct one. Demonstrate the tools and equipment needed for Arranging Tools & Equipment. enable learners to practice using the appropriate tools and equipment for Arranging Tools & Equipment in a controlled environment. Learners must be able to practice and develop their knowledge and skills relating to Arranging Tools & Equipment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		<ul> <li>Scissors</li> <li>Screw driver set</li> <li>Screw wrench</li> <li>Side cutter</li> <li>Crimping Tool</li> <li>Solder iron</li> <li>Spanner box</li> <li>Steel roll/Steel wire</li> <li>Sucker</li> <li>Silicone Gun</li> <li>Spirit Level</li> <li>Electric Drill Machine</li> <li>Hand Grinding Machine</li> <li>Thimble plier</li> <li>Tongs (sunny)</li> <li>Vernier caliper</li> <li>Wire gauge</li> <li>Wire stripper</li> <li>Adjustable Wrench</li> <li>Satellite Finder</li> <li>Multi-meter</li> <li>Digital Compass</li> <li>Wire Tester</li> <li>LAN Tester</li> <li>Rivet Gun</li> </ul>

Learning Unit	Suggested Teaching/	Delivery Context	Media
	Learning Activities		
			<ul> <li>Emergency lamp</li> <li>Coaxial Cable Stripper</li> <li>Cable Compression Too</li> <li>Cable tester</li> </ul>
LU2: Maintain Tool Kit	<ul> <li>Lead a discussion on Maintaining Tool Kit. Encourage ALL trainees to participate in the discussion. Ensure tha the discussion addresses the following points: <ul> <li>Check physical condition of tools &amp; equipment before use</li> <li>Perform preventive maintenance as per standards</li> <li>Perform corrective maintenance (If required)</li> <li>Clean Tools and equipment after use</li> <li>Place tools and equipment at appropriate place.</li> </ul> </li> <li>Prepare either: <ul> <li>A flip chart</li> <li>A PowerPoint slide</li> <li>A handout</li> </ul> </li> <li>showing the key topics about Maintaining Tool Kit. Go through all the key topics briefly and then allocate one key topic to each group.</li> <li>Learners need to work in their small groups discussing the key topic that has been allocated to their group.</li> <li>Each group should use a sheet of flip chart paper to record three main points from their discussions that</li> </ul>		Learner guide Multi-media projector Handouts Videos <b>Tools and equipment as LU1</b>

Learning Unit	Suggested Teaching/	Delivery Context	Media
	Learning Activities		
	relate to <b>their key topic</b> .		
	After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for Maintaining Tool Kit. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.		
	Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.		
	End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.		
	Learners must be able to practice and develop their knowledge and skills relating to Maintaining Tool Kit in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		
LU3: Insulate tools equipment	and Deliver an illustrated presentation on Insulating tools and equipment. Ensure that the presentation focuses on the following:	Practical: Lab/ Field	Learner guide Multi-media projector Handouts
	<ul> <li>Select insulated tools and equipment.</li> <li>Adopt insulated tools and equipment as per standard.</li> </ul>		Videos <b>Tools and equipment as LU1</b>

Learning Unit	Suggested Teaching/	Delivery Context	Media
	Learning Activities		
	Learners need to devise 10 quiz questions with answers based on Insulate tools and equipment. They must make sure their questions cover key topics for Insulate tools and equipment. Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about Insulate tools and equipment.		
	On the reverse of the card, they should write an appropriate answer to their question.		
	For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner's answer was not wholly correct.)		
	The scorekeeper records 1 mark for a correct answer under the appropriate team's score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.		
	Total the scores at the end of the quiz to see which team won.		
	After the quiz, collect learners' question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct one.		

Learning Unit	Suggested Teaching/	Delivery Context	Media
	Learning Activities		
U4: Calibrate meas	<ul> <li>suring Invite an experienced colleague to deliver a presentation about Calibrating measuring instruments. Ensure that the presentation addresses the following points: <ul> <li>Check calibration status of measuring tools.</li> <li>Perform calibration of measuring tools as per standards.</li> <li>Record calibration test results.</li> </ul> </li> </ul>	Practical: Lab/ Field	Learner guide Multi-media projector Handouts Videos <b>Tools and equipment as LU1</b>
	<ul> <li>Display a flip chart showing the following key question related to Calibrating measuring instruments:</li> <li><i>'Why calibration is necessary for measuring instruments?'</i></li> <li>Give each learner a sheet of paper and asked them to write their name at the top. Explain to learners that they will be sharing their work with other learners.</li> <li>Ask learners to write silently for 3-5 minutes answering the question displayed on the flip chart. When learners have completed writing, instruct them to pass their paper to the learner on their left. Each learner will read what their partner has passed to them and write a response. This will also be done silently.</li> <li>After another 2-3 minutes, instruct the learners to pass the paper to their left a second time. Repeat the same procedure, also done in silence.</li> <li>At the end of the activity, ask the learners to return the paper to the original writer. Allow learners a few</li> </ul>		

Learning Unit	Suggested Teaching/	Delivery Context	Media
	Learning Activities		
	moments to read over the responses to their writing.		
	Ask learners to work in pairs to reflect on and discuss the responses to the question on the flip chart.		
	When this activity is concluded, collect the papers and		
	make copies for each learner.		
	Learners must be able to practice and develop their knowledge and skills relating to Calibrating measuring instruments in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	) P	
U5: Manage inventor	<ul> <li>v of Deliver an illustrated presentation on Managing inventory of tools and equipment. Ensure that the presentation focuses on the following: <ul> <li>Check number of tools and equipment as per record.</li> <li>Report for faulty tools and equipment.</li> <li>Generate demands for defective tools and equipment.</li> <li>Maintain record of all tools and equipment.</li> </ul> </li> </ul>	Practical: Lab/ Field	Learner guide Multi-media projector Handouts Videos <b>Tools and equipment as LU1</b>
	<ul><li>A flip chart</li><li>A PowerPoint slide</li><li>A handout</li></ul>		
	showing key topics for Manage inventory of tools and equipment. Learners need to work in small groups		

Learning Unit	Suggested Teaching/	Delivery Context	Media
	Learning Activities		
	discussing the key topics. Each group should make notes from their discussions that identify <b>three main</b> <b>points</b> that related to <b>each key topic</b> .		
	After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for Manage inventory of tools and equipment. Discuss these main points briefly with the whole group. Learners should make additional notes to record additional points their group had not identified.		
	Then ask the next group to share the main points they have recorded for the second key topic. Repeat the discussion process. Continue until you have covered all the key topics.		
	End the group discussion activity with a summary.		
	Learners must be able to practice and develop their knowledge and skills relating to Managing inventory of tools and equipment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		

## Frequently Asked Questions

1.	What is Competency Based Training (CBT) and how is it different from currently offered trainings in institutes?	Competency-based training (CBT) is an approach to vocational education and training that places emphasis on what a person can do in the workplace as a result of completing a program of training. Compared to conventional programs, the competency based training is not primarily content based; it rather focuses on the competence requirement of the envisaged job role. The whole qualification refers to certain industry standard criterion and is modularized in nature rather than being course oriented.
2.	What is the passing criterion for CBT certificate?	You shall be required to be declared "Competent" in the summative assessment to attain the certificate.
3.	What are the entry requirements for this course?	The entry requirement for this course is as follow. <ul> <li>Middle (Grade 8) for level-1</li> <li>Level-1 for level-2</li> <li>Level-2 for level-3</li> <li>Level-3 for level-4</li> </ul>
4.	How can I progress in my educational career after attaining this certificate?	You shall be able to progress further to National Vocational Certificate Level-4 in satellite Dish Installer; and take admission in a level-5, DAE or equivalent course. In certain case, you may be required to attain an equivalence certificate from The Inter Board Committee of Chairmen (IBCC).
5.	If I have the experience and skills mentioned in the competency standards, do I still need to attend the course to attain this certificate?	You can opt to take part in the Recognition of Prior Learning (RPL) program by contacting the relevant training institute and getting assessed by providing the required evidences.

6. What is the entry requirement for Recognition of Prior Learning program (RPL)?	There is no general entry requirement. The institute shall assess you, identify your competence gaps and offer you courses to cover the gaps; after which you can take up the final assessment.
<ol> <li>Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)?</li> </ol>	There are no age restrictions to enter this course or take up the Recognition of Prior Learning program
8. What is the duration of this course?	The duration of the course work is
9. What are the class timings?	The classes are normally offered 25 days a month from 08:00am to 01:30pm. These may vary according to the practices of certain institutes.
10. What is equivalence of this certificate with other qualifications?	As per the national vocational qualifications framework, the level-4 certificate is equivalent to Matriculation. The criteria for equivalence and equivalence certificate can be obtained from The Inter Board Committee of Chairmen (IBCC).
11. What is the importance of this certificate in National and International job market?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTC website.
12. Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well?	You shall be able to take up jobs in the Satellite Dish Installation industry with the following designations <ul> <li>Domestic Satellite Dish Installer</li> <li>Industrial Satellite Dish Installer</li> <li>Satellite dish Technician</li> <li>Satellite dish supervisor</li> <li>Satellite installation technician</li> <li>Satellite dish Trainer</li> <li>Cable distributer,</li> </ul>

	<ul> <li>Internet Service Provider</li> <li>TV Network distributor,</li> <li>TV Technician</li> <li>work in Telecommunication.</li> </ul>	
13. What are possible career progressions in industry after attaining this certificate?	You shall be able to progress up to the level of supervisor after attaining sufficient experience, knowledge and skills during the job. Attaining additional relevant qualifications may aid your career advancement to even higher levels.	
14. Is this certificate recognized by any competent authority in Pakistan?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). The official certificates shall be awarded by the relevant certificate awarding body.	
15. Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training?	On-the-job training is not a requirement for final / summative assessment of this certificate. However, taking up on-the-job training after or during the course work may add your chances to get a job afterwards.	
16. How much salary can I get on job after attaining this certificate?	The minimum wages announced by the Government of Pakistan in 2019 are PKR 17,500. This may vary in subsequent years and different regions of the country. Progressive employers may pay more than the mentioned amount.	
17. Are there any alternative certificates which I can take up?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.	
18. What is the teaching language of this course?	The leaching language of this course is Urdu and English.	
19. Is it possible to switch to other certificate programs during the course?	Partially no, but if you have covered the Generic and functional competencies of this course and you want to switch to other certificate or want to enroll in other course, then you will take exemptions from the generic and functional competencies of the same level.	
20. What is the examination / assessment system in this program?	Competency based assessments are organized by training institutes during the course which serve the purpose of assessing the progress and preparedness of each student. Final /	

	summative assessments are organized by the relevant qualification awarding bodies at the end of the certificate program. You shall be required to be declared "Competent" in the summative assessment to attain the certificate.
21. Does this certificate enable me to work as freelancer?	Yes! You can start your small business of Installation of satellite dish or other telecom equipment. You may need additional skills on entrepreneurship to support your initiative.

## **Test Yourself (Multiple Choice Questions)**

MODULE 1

- **Question 1** Barometer is a scientific instrument used to measure\_\_\_\_\_\_, which most of the time used in weather forecast and analysis.
- A Atmospheric pressure
- B Azimuth
- C Direction
- D Altitude

- Question 2 \_\_\_\_\_ is an instrument used for navigational and to find directions also use to perfectly position antenna direction.
- A Barometer
- B Coaxial cable cutter
- C Compass
- D Volt Meter

Question 3 Cable handling tool which allows its user to install highest quality connectors on cables and uses mainly on installation of TV connectors.

- A Cable ties
- B Cable compression tool
- C Cable cutter tool
- D Cable joining tool

- **Question 4** Cable testing tool used to measure several physical parameters of a cable which helps in\_\_\_\_.
- A Measure length of cable
- B Check cable faults
- C Check bandwidth of cable
- D Signal Attenuation

**Question 5** Which tool is useful for tightening screws?

- A Socket wrench set
- B Power screwdriver
- C Barometer
- D Hammer

## Answers

Questions	Answer
1	Α
2	С
3	В
4	В
5	В

## National Vocational and Technical Training Commission (NAVTTC)

- 🗞 +92 51 9044 322
- info@navttc.org
   www.navttc.org