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Norwegian Embassy  
Islamabad



# SATELLITE DISH INSTALLER



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CBT Curriculum

National Vocational Certificate Level 4

Version 1 - October, 2019



Implemented by

**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

**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

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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 (NAVTTTC) 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**

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## **Introduction**

### **Definition/ Description of the training program for *Satellite Dish Installer***

In order to build the capacity of technical and vocational training institutes in Pakistan through provision of demand driven competencies-based trainings in Electronics sector the NAVTTC, and TEVT Sector Support Program (TSSP) have joined hands together to develop qualifications for Electronics sector. These qualifications will not only build the capacity of existing workers of this sector but also support the youth to acquire skills best fit for this sector. The benefits and impact of development of these qualifications will be on both demand and supply side.

Based upon this demand of industry these competency-based qualifications for Satellite Dish Installer are developed under National Vocational Qualification Framework (NVQF) (Level 1 to 4). The qualifications mainly cover competencies along with related knowledge and professional skills which are essential for getting a job or self-employed.

The qualifications are also in line with the vision of Pakistan's National Skills Strategy (NSS), National TVET Policy and National Vocational Qualification Framework (NVQF). This provides policy directions, support and an enabling environment to the public and private sectors to impart training for skills development to enhance social and economic profile. The National Vocational & Technical Training Commission (NAVTTC) has approved the Qualification Development Committee (QDC). The QDC consists experts from the relevant industries from different geographical locations across Pakistan and academicians who were consulted during the development process to ensure input and ownership of all the stakeholders. The National Competency Standards could be used as a referral document for the development of curricula to be used by training institutions.

### **Purpose of the training program**

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.

### **Overall objectives of training program**

The Satellite Dish Installer qualifications level 1- 4 consists of theoretical and practical details required to Install Satellite Dish in Electronics industries. However, this will require providing additional input on entrepreneurship development for the one who is willing to start his/her own business. The main objectives of the qualification are as follows:

- Follow Work Health and Safety Policies
- Understand the Workplace Policies and Procedures

- Follow Basic Communication Skills
- Operate Computer Functions
- Demonstrate Basic Literacy Skills
- Maintain Tools and Equipment
- Maintain Personal Health and Safety
- Communicate the Workplace Policy and Procedure
- Perform Basic Communication
- Perform Basic Computer Application
- Develop Entrepreneurial Skills
- Demonstrate Basic Numeracy Skills
- Develop Basic Electrical/ Electronic Skills
- Perform Cable Connection
- Assemble Dish Antenna
- Apply Work Health and Safety Practices (WHS)
- Identify and Implement Workplace Policy and Procedures
- Communicate at Workplace
- Perform Computer Application Skills
- Manage Personal Finances
- Mount Dish for Uplink / Downlink
- Perform Tuning
- Perform Troubleshooting
- Conduct Site Survey
- Contribute to Work Related Health and Safety (WHS) Initiatives
- Analyze and Develop Workplace Policy and Procedures
- Perform Advanced Communication
- Develop Advance Computer Application Skills
- Manage Human Resource Services
- Implement Network Security
- Plan Work

### **Competencies to be gained after completion of course**

At the end of the course, the trainee must have attained the following competencies:

1. Follow Work Health and Safety Policies
2. Understand the Workplace Policies and Procedures
3. Follow Basic Communication Skills

4. Operate Computer Functions
5. Demonstrate Basic Literacy Skills
6. Maintain Tools and Equipment
7. Maintain Personal Health and Safety
8. Communicate the Workplace Policy and Procedure
9. Perform Basic Communication
10. Perform Basic Computer Application
11. Develop Entrepreneurial Skills
12. Demonstrate Basic Numeracy Skills
13. Develop Basic Electrical/ Electronic Skills
14. Perform Cable Connection
15. Assemble Dish Antenna
16. Apply Work Health and Safety Practices (WHS)
17. Identify and Implement Workplace Policy and Procedures
18. Communicate at Workplace
19. Perform Computer Application Skills
20. Manage Personal Finances
21. Mount Dish for Uplink / Downlink
22. Perform Tuning
23. Perform Troubleshooting
24. Conduct Site Survey
25. Contribute to Work Related Health and Safety (WHS) Initiatives
26. Analyze and Develop Workplace Policy and Procedures
27. Perform Advanced Communication
28. Develop Advance Computer Application Skills
29. Manage Human Resource Services
30. Implement Network Security
31. Plan Work

**Possible available job opportunities available immediately and later in the future**

Satellite Dish Installer are employed in the light engineering sector especially in Telecom sector. Experienced Satellite Dish Installer may advance through promotions with the same employer or by moving to more advanced positions with other employers. They can become:

- Domestic Satellite Dish Installer
- Industrial Satellite Dish Installer
- Satellite dish Technician
- Satellite dish supervisor

- Satellite installation technician
- Satellite dish Trainer
- Cable distributor,
- Internet Service Provider
- TV Network distributor,
- TV Technician
- work in Telecommunication.

### **Trainee entry level**

- Middle (Grade 8) for level-1
- Level-1 for level-2
- Level-2 for level-3
- Level-3 for level-4

### **Minimum qualification for trainer**

- Must hold DAE/Higher in (Electrical/Telecom/Electronics/Equivalent)
- Or at least level 4 qualification in **(Satellite Dish Installer)** with minimum 03 years of experience in relevant field.

### **Recommended trainer: trainee ratio**

The recommended maximum trainer: trainee ratio for this program is 1 trainer for 20 trainees

### **Medium of instruction i.e. language of instruction**

Instructions will be in Urdu/English/Local language.

### **Duration of the course (Total time, Theory & Practical time)**

This curriculum comprises of 31 modules. The recommended delivery time is 2400 hours.

- Delivery of the course can therefore be full time (4 hours a business day), 6 days a week, for 24 months (on average 26 working days a month) for each level. Training providers are at liberty to develop other models of delivery, including part-time and evening delivery. **OR**
- Delivery of the course can therefore be full time (5 hours a business day), 5 days a week, for 24 months (on average 22 working days a month). Training providers are at liberty to develop other models of delivery, including part-time and evening delivery.



The full structure of the course is as follows:

Module	Theory hours	Workplace hours	Total hours
Follow Work Health and Safety Policies	20	30	50
Understand the Workplace Policies and Procedures	30	20	50
Follow Basic Communication Skills	30	20	50
Operate Computer Functions	10	40	100
Demonstrate Basic Literacy Skills	10	40	50
Maintain Tools and Equipment	10	40	50
Maintain Personal Health and Safety	10	40	50
Communicate the Workplace Policy and Procedure	20	30	50
Perform Basic Communication	50	50	100
Perform Basic Computer Application	10	140	150
Develop Entrepreneurial Skills	50	100	150
Demonstrate Basic Numeracy Skills	10	40	50
Develop Basic Electrical/ Electronic Skills	30	120	150
Perform Cable Connection	10	90	100
Assemble Dish Antenna	20	180	200
Apply Work Health and Safety Practices (WHS)	10	20	30
Identify and Implement Workplace Policy and Procedures	5	15	20
Communicate at Workplace	5	15	20
Perform Computer Application Skills	10	40	50

Module	Theory hours	Workplace hours	Total hours
Manage Personal Finances	10	40	50
Mount Dish for Uplink / Downlink	10	40	50
Perform Tuning	10	140	150
Perform Troubleshooting	10	190	200
Conduct Site Survey	10	180	200
Contribute to Work Related Health and Safety (WHS) Initiatives	10	20	30
Analyze and Develop Workplace Policy and Procedures	10	40	50
Perform Advanced Communication	10	40	50
Develop Advance Computer Application Skills	10	40	50
Manage Human Resource Services	10	40	50
Implement Network Security	10	140	150
Plan Work	14	36	50

### Sequence of the modules

This qualification is made up of 31 modules. A suggested distribution of these modules is presented overleaf. This is not prescriptive and training providers may modify this if they wish.

The following technical module will be followed as require for the training purpose.

Module 6

Module 13

Module 14

Module 15

Module 21

Module 22

Module 23

Module 24

Module 30

Module 31

Each module covers a range of learning components. These are intended to provide detailed guidance to teachers (for example the Learning Elements component) and give them additional support for preparing their lessons (for example the Materials Required component). The detail provided by each module will contribute to a standardized approach to teaching, ensuring that training providers in different parts of the country have clear information on what should be taught. Each module also incorporates the industrial demand of Pakistan that make this qualification unique to Pakistan's industry needs.

## Summary – overview of the curriculum

### Modules

#### Module: 0619001088 Perform Troubleshooting

**Objective of the Module:** The objective of this module is to provide skills and knowledge related to Check Signals, Check Power Supply, check Weather Effects. Check Interference Effects, Diagnose Software Fault and Diagnose Hardware Fault.

**Duration: 200hrs. Theory: 10 hrs.**

**Practice: 190 hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1 Check Signals	<b>You will be able to</b> 1. Check LNB with satellite finder 2. Check co-axial cable continuity for signals with multi-meter/satellite finder 3. Check Diseqc	Describe the method to check IF connectors Demonstrate the method to check signal strength with satellite finder Explain the method to check Diseqc switch/splitter faults Describe the method to check receiver IF output <b>Practical-1</b> Check signal strength at LNB and	<b>Total 40 Hrs</b>  <b>Theory: 2 Hrs</b>  <b>Practical : 38 Hrs</b>	<ul style="list-style-type: none"><li>Satellite finder</li><li>Multi-meter</li></ul> System Software	Practical: Lab/ Field

	<p>switch/splitter with satellite finder</p> <p>4. Check output down converter of receiver with multi-meter</p>	<p>receiver</p>			
<p><b>LU2</b></p> <p>Check Power Supply</p>	<p><b>You will be able to</b></p> <ol style="list-style-type: none"> <li>1. Check receiver power supply</li> <li>2. Check LNB power supply from receiver</li> <li>3. Check power supply of actuator stepper motor for revolving dish</li> <li>4. Check voltage of limit switches</li> <li>5. Check low voltage problem</li> </ol>	<p>Describe the procedure to check power supply of receiver and LNB Explain the method to check power supply of actuator, stepper motor and revolving motor Describe the voltage range required for switches</p> <hr/> <p><b>Practice-1</b> Check power supply of LNB, receiver, actuator, and stepper motor.</p>	<p><b>Total 40 Hrs</b></p> <p><b>Theory: 2 Hrs</b></p> <p><b>Practical : 38 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Satellite finder</li> <li>• Multi-meter</li> </ul> <p>System Software</p>	<p>Field/ Lab</p>
<p><b>LU3</b></p> <p>Check Weather Effects</p>	<p><b>You will be able to</b></p> <ol style="list-style-type: none"> <li>1. Check LNB/LNA overheating effects</li> <li>2. Check rusty cables and connectors</li> </ol>	<p>Describe the effect of heat/Temp on LNB/LNA Demonstrate the method of health check of LNB and LNA Explain the effect of wind/rain on antenna system</p>	<p><b>Total 40 Hrs</b></p> <p><b>Theory: 2 Hrs</b></p> <p><b>Practical</b></p>	<ul style="list-style-type: none"> <li>• Satellite finder</li> <li>• Multi-meter</li> </ul> <p>System Software</p>	<p>Field/ Lab</p>

	<ol style="list-style-type: none"> <li>3. Check short circuit of LNB/LNA due to thunder/lighting storm</li> <li>4. Check wind effects</li> </ol>	<p><b>Practice-1</b> Prepare health check report of antenna system installed commercially</p>	<p><b>: 38 Hrs</b></p>		
<p><b>LU 4</b> Check Interference Effects</p>	<p><b>You will be able to</b></p> <ol style="list-style-type: none"> <li>1. Check no noisy signal in surrounding</li> <li>2. Check no mobile tower in surrounding</li> <li>3. Check no high-tension transmission line</li> <li>4. Check no building/trees obstruction Check unwanted signals due to reflection, refraction, diffraction and scattering</li> </ol>	<p>Describe effect of noise on antenna signals Explain effect of cellular tower and power line on dish antenna performance Brief building and trees effect on dish antenna system Describe signal reflection, diffraction and scattering principals</p> <p><b>Practice-1</b> Check Interference Effect on antenna system installed commercially</p>	<p><b>Total 40 Hrs</b></p> <p><b>Theory: 2 Hrs</b></p> <p><b>Practical : 38 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Satellite finder</li> <li>• Multi-meter System Software</li> </ul>	Field/ Lab
<p><b>LU 5</b> Diagnose Software Faults</p>	<p><b>You will be able to</b></p> <ol style="list-style-type: none"> <li>1. Check stuck picture fault</li> <li>2. Check if receiver/remote is not working</li> <li>3. Check if the receiver is on standby mode</li> <li>4. Check receiver hang fault,</li> <li>5. Check delay in sound &amp; picture</li> <li>6. Check stuck on the main menu</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe different types of faults in antenna system <ul style="list-style-type: none"> <li>• Stuck picture</li> <li>• Receiver not working</li> <li>• Delay in sound and picture</li> </ul> </li> </ol> <p><b>Practice-1</b> Troubleshoot</p>	<p><b>Total 40 Hrs</b></p> <p><b>Theory: 2 Hrs</b></p> <p><b>Practical : 38 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Satellite finder</li> <li>• Multi-meter System Software</li> </ul>	Field/ Lab

		different faults in antenna system installed commercially			
<b>LU 6</b> Diagnose Hardware Faults	<b>You will be able to</b> <ol style="list-style-type: none"> <li>1. Check continuity of power cables</li> <li>2. Check continuity of input/output cables (AV, VGA, HDMI, S-video, Scart)</li> <li>3. Check continuity of input/output ports</li> <li>4. Diagnose miss scanning fault</li> <li>5. Diagnose auto change of channels</li> <li>6. Diagnose receiver overheating fault</li> <li>7. Diagnose sound noise fault</li> </ol>	<p><b>Describe different hardware faults for dish system</b></p> <p><b>Continuity of cables</b></p> <p><b>Miss scanning</b></p> <p><b>Auto change channels</b></p> <p><b>Receiver over heating</b></p> <p><b>Sound noise</b></p> <p><b>Practice-1</b></p> <p>Troubleshoot different hardware faults in antenna system installed commercially</p>	<p><b>Total</b></p> <p><b>40 Hrs</b></p> <p><b>Theory:</b></p> <p><b>2 Hrs</b></p> <p><b>Practical</b></p> <p><b>:</b></p> <p><b>38 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Satellite finder</li> <li>• Multi-meter</li> </ul> <p>System Software</p>	Field/ Lab

## Module: 0619001089 Conduct Site Survey

**Objective of the Module:** The objective of this module is to provide skills and knowledge related to Document Customer Demand, Select Location. Check Environmental factors, Inspect Cable Routing, Locate Satellite and Prepare Feasibility Report

**Duration: 200hrs. Theory: 10 hrs.**

**Practice: 190 hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
<b>LU1</b> Document Customer Demand	<b>You will be able to</b> <ol style="list-style-type: none"> <li>1. Enlist desired channels</li> <li>2. Prepare estimated budget as per demand</li> <li>3. Keep record of customer demand</li> </ol>	Describe satellite system Explain available channels Describe to prepare budget Demonstrate report writing of customer demand  <b>Practical-1</b> Prepare report of customer demand for required installation	<b>Total 40 Hrs</b>  <b>Theory: 2 Hrs</b>  <b>Practical: 38 Hrs</b>	<ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Compass</li> <li>• Satellite finder</li> <li>• Report format</li> </ul>	Practical: Lab/ Field
<b>LU2</b> Select Location	<b>You will be able to</b> <ol style="list-style-type: none"> <li>1. Ensure availability of desired channels at installation area</li> <li>2. Select appropriate place for dish installation as per customer demand</li> </ol>	Describe suitable location of site installation for maximum reception  Explain local Government rule and regulation for antenna system installation  <b>Practice-1</b> Select model location for installation of antenna	<b>Total 40 Hrs</b>  <b>Theory: 2 Hrs</b>  <b>Practical: 38 Hrs</b>	<ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Compass</li> <li>• Satellite finder</li> <li>• Report format</li> </ul>	Field/ Lab

	<ol style="list-style-type: none"> <li>3. Ensure local regulation in installation area</li> <li>4. Ensure obstruction-free area for dish installation</li> </ol>	system			
<b>LU3</b> Check Environmental factors	<b>You will be able to</b> <ol style="list-style-type: none"> <li>1. Take weather history (wind pressure, humidity, temperature, rain and snow fall) of dish installation area</li> <li>2. Select best quality of dish and dish components as per wind pressure, snow fall and temperature</li> <li>3. Ensure strong foundation for dish stand against wind pressure</li> </ol>	Describe environmental factors which affect transmission of antenna system Explain different models and vendors of dish system in market. Brief about required standard of foundation of antenna system	<b>Total</b> <b>40 Hrs</b>  <b>Theory:</b> <b>2 Hrs</b>  <b>Practical:</b> <b>38 Hrs</b>	<ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Compass</li> <li>• Satellite finder</li> <li>• Report format</li> </ul>	Field/Lab



<p><b>LU 4</b> Inspect Cable Routing</p>	<p><b>You will be able to</b></p> <ol style="list-style-type: none"> <li>1. Follow building rules and regulations</li> <li>2. Draw layout for cable routing</li> <li>3. Measure length of cable</li> <li>4. Identify cable gauge</li> <li>5. Identify line amplifier if required</li> </ol>	<p>Describe cable routing standards for installation Explain cable requirement for installation of dish system <b>Practice-1</b> Prepare layout diagram of cable routing for model site</p>	<p><b>Total 40 Hrs</b> <b>Theory: 2 Hrs</b> <b>Practical: 38 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Compass</li> <li>• Satellite finder</li> <li>• Report format</li> </ul>	<p>Field/ Lab</p>
<p><b>LU 5</b> Locate Satellite</p>	<p><b>You will be able to</b></p> <ol style="list-style-type: none"> <li>1. Ensure tools and equipment</li> <li>2. Identify East-West directions with compass</li> <li>3. Check availability of satellite as per customer demand in dish installation area</li> <li>4. Identify dish size</li> </ol>	<p><b>Describe tools requirement required to locate satellite</b> <b>Explain types of poles</b> <b>Practice-1</b> Locate satellite for model site</p>	<p><b>Total 40 Hrs</b> <b>Theory: 2 Hrs</b> <b>Practical: 38 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Compass</li> <li>• Satellite finder</li> <li>• Report format</li> </ul>	<p>Field/ Lab</p>

	for the availability of strong signals of the desired satellite				
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## Module: 0619001086 Implement Network Security

**Objective of the Module:** The objective of this module is to provide skills and knowledge related to develop network server, Connect Receiver with Network, Provide Scrambled Services, Apply Parental Lock and Follow Security Protocols as per Govt. Policies

**Duration: 150 hrs. Theory: 10 hrs. Practice: 140 hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
<b>LU1:</b> Develop Network	<b>You will be able to</b> 1. Connect one dish with multiple receivers 2. Connect multiple dishes with one receiver 3. Connect one receiver with multiple displays 4. Connect multiple satellite receivers with multiple dishes.	1. Demonstrate Network topology. <ul style="list-style-type: none"> <li>• Bus</li> <li>• Mesh</li> <li>• Star</li> </ul> 2. Demonstrate the types of splitters. <ul style="list-style-type: none"> <li>• 2-ports</li> <li>• 3-ports</li> <li>• 4-ports</li> <li>• 5 ports</li> </ul> 3. Demonstrate the types of DiSEqC switch. <ul style="list-style-type: none"> <li>• 2-ports</li> <li>• 3-ports</li> <li>• 4-ports</li> <li>• 5 ports</li> </ul> 4. Demonstrate the types of display ports. <ul style="list-style-type: none"> <li>• VGA</li> <li>• HDMI</li> <li>• AV</li> <li>• RF</li> </ul>	<b>Total 30 Hrs</b> <b>Theory: 2 Hrs</b> <b>Practical: 28 Hrs</b>	<ul style="list-style-type: none"> <li>• Different gauges of coaxial cables.</li> <li>• Multiple ports splitters.</li> <li>• Display cables.</li> <li>• Cable stripper</li> <li>• Knife</li> <li>• Pliers</li> <li>• Cable tester</li> <li>• Marker</li> <li>• White Board</li> <li>• Duster</li> <li>• Multimedia Projector</li> </ul>	Theory: Class  Practical Lab

		<ul style="list-style-type: none"> <li>• Scart</li> </ul> <p>5. Demonstrate using combination of DiSEqC switches and splitters.</p>			
		<p><b>Practical-1</b> Perform Installation of single dish with multiple receivers.</p> <p><b>Practical-2</b> Perform Installation of multiple dishes with one receiver.</p> <p><b>Practical-3</b> Perform installation of one receiver with multiple displays.</p> <p><b>Practical-4</b> Perform Installation of multiple dishes with multiple receiver.</p>			
<b>LU2</b> Connect Receiver with Network	<p><b>You will be able to</b></p> <ol style="list-style-type: none"> <li>1. Connect satellite receiver with internet through Wi-Fi or Ethernet cable</li> <li>2. Connect receiver with multiple displays through video transmitter</li> <li>3. Connect video transmitter with UHF/VHF antenna</li> </ol>	<ol style="list-style-type: none"> <li>1. Demonstrate the receiver connectivity with Ethernet and WIFI.</li> <li>2. Demonstrate how to check the MAC address of receiver.</li> <li>3. Describe the types and range of video transmitters. <ul style="list-style-type: none"> <li>• Short range</li> <li>• Medium range</li> <li>• Long range</li> </ul> </li> <li>4. Describe the types of antenna. <ul style="list-style-type: none"> <li>• UHF</li> <li>• VHF</li> </ul> </li> </ol>	<p><b>Total 30 Hrs</b></p> <p><b>Theory: 2 Hrs</b></p> <p><b>Practical: 28 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Marker</li> <li>• White Board</li> <li>• Duster</li> <li>• Multimedia Projector</li> </ul>	<p>Theory: Class</p> <p>Practical Lab</p>

<b>LU3</b> Provide Scrambled Services	<ol style="list-style-type: none"> <li>1. Connect satellite receiver with server</li> <li>2. Open receiver main menu</li> <li>3. Select desired cam</li> <li>4. Insert card in the socket to descramble given data.</li> </ol>	Describe service provider server. Describe CA system Explain different types of Cam modules Describe Smart card/CA card.	<b>Total 30 Hrs</b>  <b>Theory: 2 Hrs</b>	<ul style="list-style-type: none"> <li>• CA cards</li> <li>• Cam Modules</li> <li>• Satellite Receiver</li> <li>• Marker</li> <li>• White Board</li> <li>• Duster</li> <li>• Multimedia Projector</li> </ul>	Theory: Class
		<b>Practical-1</b> Demonstrate the reception of a scrambled channel	<b>Practical: 28 Hrs</b>		Practical Lab
<b>LU 4</b> Apply Parental Lock	<ol style="list-style-type: none"> <li>1. Open receiver main menu</li> <li>2. Select channel edit option</li> <li>3. Select parental lock option</li> <li>4. Change the default password</li> <li>5. Add channels in the parental lock</li> </ol>	<ul style="list-style-type: none"> <li>• Browse Menu and select the Parental Lock option</li> <li>• Describe method to change default password.</li> <li>• Describe the method to add channels in the parental lock</li> </ul>	<b>Total 30 Hrs</b>  <b>Theory: 2 Hrs</b>  <b>Practical: 28 Hrs</b>	<ul style="list-style-type: none"> <li>• Different types of Satellite Receiver with remotes</li> <li>• Universal Remote</li> <li>• Multimedia Projector</li> </ul>	
		<b>Practical-1</b> Demonstrate the use of parental lock in satellite receiver.			
<b>LU 5</b> Follow Security Protocols as per Govt. Policies	<ol style="list-style-type: none"> <li>1. Interpret government policy about security protocols</li> <li>2. Follow cyber rules and regulations</li> </ol>	<ul style="list-style-type: none"> <li>• Explain government policy about security protocols.</li> <li>• Describe cyber rules and regulations</li> </ul> <b>Practical-1</b> Enlist important government policies <b>Practical-2</b> Enlist important cyber rules and regulations	<b>Total 30 Hrs</b>  <b>Theory: 2 Hrs</b>  <b>Practical: 28 Hrs</b>	<ul style="list-style-type: none"> <li>• Government Rules Book</li> <li>• Marker</li> <li>• White Board</li> <li>• Duster</li> <li>• Multimedia Projector</li> </ul>	Theory: Class

**Module: 0619001087 Plan Work**

**Objective of the Module:** The objective of this module is to provide skills and knowledge required to assess site hazards, Follow work procedures, Follow symbols and Drawings, Manage Installation Time, Control Installation Quality, Maintain Customer Record and Label Tags on Accessories to Arrange Tools & Equipment, Maintain Tool Kit, Insulate Tools and Equipment, Calibrate measuring instruments and Manage Inventory of tools and equipment.

**Duration: 50 hrs. Theory: 14hrs. Practice: 36 hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1: Assess site hazards	<p><b>You will be able to</b></p> <ol style="list-style-type: none"> <li>Inspect site visually</li> <li>Communicate with site supervisor</li> <li>Identify actual and potential hazards</li> </ol>	<ul style="list-style-type: none"> <li>Describe different type of sites.                             <ol style="list-style-type: none"> <li>Indoor</li> <li>outdoor</li> </ol> </li> <li>Demonstrate site inspection information.</li> <li>Describe different hazards as per site inspection.                             <p>Height Wind Slips, falls etc</p> </li> </ul> <p>Practicals:</p> <ul style="list-style-type: none"> <li>To make survey for the site requirement (Identify effective indoor, outdoor sites)</li> <li>identify potential hazards</li> </ul>	<p><b>Total 8 Hrs</b></p> <p><b>Theory : 2 Hrs</b></p> <p><b>Practical: 6 Hrs</b></p>	<ul style="list-style-type: none"> <li>Handbooks</li> <li>Pencils</li> <li>Rubber</li> <li>Sharpener</li> <li>Paper Cutter</li> <li>Scissor</li> <li>Colors</li> <li>White charts</li> <li>Brown sheets</li> <li>White board markers</li> <li>Permanent markers</li> <li>File cover and files</li> <li>Computer</li> <li>Printer Scanner</li> </ul>	<p>Theory : Class</p> <p>Practical Lab</p>

<p><b>LU2:</b> Follow work procedures</p>	<ol style="list-style-type: none"> <li>1. Identify equipment and attachments needed to do the job.</li> <li>2. Determine appropriate starting point.</li> <li>3. Identify access and exit points on site.</li> <li>4. Plan work procedures for efficiency, effectiveness and safety.</li> <li>5. Sequence job tasks to co-ordinate activities with others.</li> </ol>	<ul style="list-style-type: none"> <li>• Demonstrate important tools and equipment for job starting.</li> <li>• Demonstrate sequence of operations.</li> <li>• Locate exit and entry points on site.</li> <li>• Demonstrate a report on effective work procedure and safety</li> </ul> <p>Practical: Develop an efficient work plan while considering efficiency, effectiveness and safety.</p>	<p><b>Total 07 Hrs</b></p> <p><b>Theory : 2 Hrs</b></p> <p><b>Practical: 5 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Handbook s</li> <li>• Pencils</li> <li>• Rubber</li> <li>• Sharpener s</li> <li>• Paper Cutter</li> <li>• Scissor</li> <li>• Colors</li> <li>• White charts</li> <li>• Brown sheets</li> <li>• White board markers</li> <li>• Permanent markers</li> <li>• File cover and files</li> <li>• Computer</li> <li>• Printer Scanner</li> </ul>	<p>Theory : Class</p> <p>Practical Lab</p>
<p><b>LU3:</b> Follow symbols and Drawings</p>	<ol style="list-style-type: none"> <li>1. Identify Emergency and Warning symbols</li> <li>2. Adopt emergency/warning symbols on site</li> <li>3. Interpret building drawings.</li> <li>4. Interpret abbreviations and symbols common to Electrical/Electronics/ Mechanical drawings</li> <li>5. Follow drawings of gas and water supply lines.</li> </ol>	<ul style="list-style-type: none"> <li>• Explain different emergency signs.</li> <li>• Explain different warning signs.</li> <li>• Explain different buildings drawings. <ol style="list-style-type: none"> <li>1. Structure drawing</li> <li>2. Electrical/mechanical drawings</li> <li>3. MEP drawings</li> </ol> </li> </ul> <p>Practical: Plan following</p>	<p><b>Total 07 Hrs</b></p> <p><b>Theory : 2 Hrs</b></p> <p><b>Practical: 5 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Handbook s</li> <li>• Pencils</li> <li>• Rubber</li> <li>• Sharpener s</li> <li>• Paper Cutter</li> <li>• Scissor</li> <li>• Colors</li> <li>• White charts</li> <li>• Brown sheets</li> <li>• White board markers</li> <li>• Permanent markers</li> <li>• File cover and files</li> <li>• Computer</li> </ul>	<p>Theory : Class</p> <p>Practical Lab</p>

		<p>emergency warnings and symbols for work place environment.</p> <ol style="list-style-type: none"> <li>1. Fire</li> <li>2. Wind</li> <li>3. Exit point</li> <li>4. Emergency helpline</li> <li>5. Electric shock risk</li> </ol>		<ul style="list-style-type: none"> <li>• Printer</li> <li>• Scanner</li> </ul>	
<p><b>LU4:</b> Manage Installation Time</p>	<ol style="list-style-type: none"> <li>1. Assemble dish antenna in given time frame as per SOPs.</li> <li>2. Schedule time frame for cabling and connections.</li> <li>3. Manage time for tuning</li> </ol>	<ul style="list-style-type: none"> <li>• Explain some Standard Operating Procedures (SOPs) for time management.</li> <li>• Describe work timelines for dish assembly, cabling, connections and tuning.</li> </ul> <p>Practical: Manage Dish assembly in assigned time limit. Manage cabling and connection in assigned time limit.</p>	<p><b>Total 07 Hrs</b></p> <p><b>Theory : 2 Hrs</b></p> <p><b>Practical: 5 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Handbooks</li> <li>• Pencils</li> <li>• Rubber</li> <li>• Sharpeners</li> <li>• Paper Cutter</li> <li>• Scissors</li> <li>• Colors</li> <li>• White charts</li> <li>• Brown sheets</li> <li>• White board markers</li> <li>• Permanent markers</li> <li>• File cover and files</li> <li>• Computer</li> <li>• Printer</li> <li>• Scanner</li> </ul>	<p>Theory : Class</p> <p>Practical Lab</p>
<p><b>LU5:</b> Control Installation Quality</p>	<ol style="list-style-type: none"> <li>1. inspect cable layout</li> <li>2. Adopt satellite dish installation techniques as per service provider's SOPs.</li> <li>3. Ensure best signal quality.</li> </ol>	<ul style="list-style-type: none"> <li>• Describe SOPs for quality assurance.</li> <li>• Demonstrate importance of quality assurance.</li> </ul>	<p><b>Total 07 Hrs</b></p> <p><b>Theory : 2 Hrs</b></p>		

	<ol style="list-style-type: none"> <li>4. Ensure the workability of input/ output ports.</li> <li>5. Ensure customer satisfactory feedback.</li> </ol>	<ul style="list-style-type: none"> <li>• Demonstrate importance of good quality signals and ensure workable ports.</li> <li>• Development of customer feedback form and measures as per customer feedback.</li> </ul> <p>Practical:</p> <ul style="list-style-type: none"> <li>• Display quality signals and ensure workable ports.</li> <li>• Prepare customer feedback form.</li> </ul>	<p><b>Practical:</b> <b>5 Hrs</b></p>		
<p><b>LU6:</b> Maintain Customer Record</p>	<ol style="list-style-type: none"> <li>1. Keep record of customer personal detail</li> <li>2. Keep record of dish installation relevant components</li> <li>3. Keep record of customer complaints</li> </ol>	<ul style="list-style-type: none"> <li>• Demonstrate how to maintain customer details.</li> <li>• Describe maintenance of customer complaints and track record for complain history.</li> </ul> <p>Practical:</p> <ul style="list-style-type: none"> <li>• Prepare book keeping specimen.</li> <li>• Prepare record maintenance</li> </ul>	<p><b>Total</b> <b>07 Hrs</b></p> <p><b>Theory</b> <b>: 2 Hrs</b></p> <p><b>Practical:</b> <b>5 Hrs</b></p>	<ul style="list-style-type: none"> <li>• Handbooks</li> <li>• Pencils</li> <li>• Rubber</li> <li>• Sharpeners</li> <li>• Paper Cutter</li> <li>• Scissor</li> <li>• Colors</li> <li>• White charts</li> <li>• Brown sheets</li> <li>• White board markers</li> <li>• Permanent markers</li> <li>• File cover</li> </ul>	<p>Theory : Class</p> <p>Practical Lab</p>



		specimen.		<ul style="list-style-type: none"> <li>• Computer</li> <li>• Printer</li> <li>• Scanner</li> </ul>	
<b>LU7:</b> Label Tags on Accessories	<ol style="list-style-type: none"> <li>1. Provide instructional tags on main devices</li> <li>2. Provide name tags on different cables</li> </ol>	<ul style="list-style-type: none"> <li>• Describe types of tags. <ol style="list-style-type: none"> <li>1. Name tags</li> <li>2. Instructional tags</li> <li>3. Colour tags</li> </ol> </li> <li>• Describe importance of tags.</li> </ul> <p>Practical: Prepare name tags and paste them respectively.</p> <p>Prepare instructional tags and paste them respectively</p>		<ul style="list-style-type: none"> <li>• Handbooks</li> <li>• Pencils</li> <li>• Rubber</li> <li>• Sharpeners</li> <li>• Paper Cutter</li> <li>• Scissors</li> <li>• Colors</li> <li>• White charts</li> <li>• Brown sheets</li> <li>• White board markers</li> <li>• Permanent markers</li> <li>• File cover and files</li> <li>• Computer</li> <li>• Printer</li> <li>• Scanner</li> </ul>	<p>Theory : Class</p> <p>Practical Lab</p>

## General assessment guidance for *Satellite Dish Installer*

Good practice in Pakistan makes, use of sessional and final assessments, the basis of which is described below. Good practice by vocational training providers in Pakistan, is to use a combination of these sessional and final assessments, combined to produce the final qualification result.

**Sessional assessment** is going on all the time. Its purpose is to provide feedback on what students are learning:

- To the student: to identify achievement and areas for further work
- To the teacher: to evaluate the effectiveness of teaching to date, and to focus future plans.

Assessors need to devise sessional assessments for both theoretical and practical work. Guidance is provided in the assessment strategy

**Final assessment** is the assessment, usually on completion of a course or Level, which says whether or not the student has "passed". It is – or should be – undertaken with reference to all the objectives or outcomes of the course, and is usually fairly formal. Considerations of security – ensuring that the student who gets the credit is the person who did the work – assume considerable importance in final assessment.

### Methods of assessment

For lessons with a high quantity of theory, written or oral tests related to learning outcomes and/ or learning content can be conducted. For workplace lessons, assessment can focus on the quality of planning the related process, the quality of executing the process, the quality of the product and/or evaluation of the process.

Methods include direct assessment, which is the most desirable form of assessment. For this method, evidence is obtained by direct observation of the student's performance.

Examples for direct assessment of a Satellite Dish Installer Lev-1-4 include:

- Work performances, for example installing pipeline support system and pipelines with required safety precautions
- Demonstrations, for example demonstrating to Assemble the dish for specific stand.
- Direct questioning, where the assessor would ask the student why he is considering the angle and why he is applying specific cable connection for dish antenna
- Paper-based tests, such as multiple choice or short answer questions on health & safety, Communication skill, mount dish for uplink/ downlink and tuning etc.

Indirect assessment is the method used where the performance could not be watched and evidence is gained indirectly.

Examples for indirect assessment of a Satellite Dish Installer Lev-1-4 include:

- Work products, such as a mounted dish antenna
- Completed site survey report
- Workplace documents, such as note book or practical activity journal

Indirect assessment should only be a second choice. (In some cases, it may not even be guaranteed that the work products were produced by the person being assessed.)

### **Principles of assessment**

All assessments must meet all the following principles, regardless of the method of assessment used to evidence learners' attainment.

All assessments must produce outcomes that are:

- valid: the assessment evidence meets all assessment criteria and all learning outcomes
- authentic: all the work is the learner's own
- reliable: assessment evidence is consistent and generates outcomes that would be replicated were the assessment repeated
- current: assessment evidence is up-to-date
- sufficient: enough work is available to justify the credit value, and to enable a consistent and reliable judgement about the learner's achievement
- comparable: all assessment evidence is comparable in standard between assessments within a unit/qualification, and between learners of the same level
- manageable: all assessment places reasonable demands on all learners
- fair and minimize bias: assessments are fair to all learners irrespective of their characteristics (for example, age, gender, etc)

## Assessment strategy for Satellite Dish Installer Lev-1-4 Curriculum

This curriculum consists of 31 modules:

Module-1	Follow Work Health and Safety Policies
Module-2	Understand the Workplace Policies and Procedures
Module-3	Follow Basic Communication Skills
Module-4	Operate Computer Functions
Module-5	Demonstrate Basic Literacy Skills
Module-6	Maintain Tools and Equipment
Module-7	Maintain Personal Health and Safety
Module-8	Communicate the Workplace Policy and Procedure
Module-9	Perform Basic Communication
Module-10	Perform Basic Computer Application
Module-11	Develop Entrepreneurial Skills
Module-12	Demonstrate Basic Numeracy Skills
Module-13	Develop Basic Electrical/ Electronic Skills
Module-14	Perform Cable Connection
Module-15	Assemble Dish Antenna
Module-16	Apply Work Health and Safety Practices (WHS)
Module-17	Identify and Implement Workplace Policy and Procedures
Module-18	Communicate at Workplace
Module-19	Perform Computer Application Skills
Module-20	Manage Personal Finances

Module-21	Mount Dish for Uplink / Downlink
Module-22	Perform Tuning
Module-23	Perform Troubleshooting
Module-24	Conduct Site Survey
Module-25	Contribute to Work Related Health and Safety (WHS) Initiatives
Module-26	Analyze and Develop Workplace Policy and Procedures
Module-27	Perform Advanced Communication
Module-28	Develop Advance Computer Application Skills
Module-29	Manage Human Resource Services
Module-30	Implement Network Security
Module-31	Plan Work

## **Sessional or Developmental assessment**

The sessional/developmental assessment shall be conducted after completion of each module in two parts: theoretical assessment and practical assessment.

Theoretical assessment for all learning modules must consist of a written paper lasting at least 30 minutes per module. This can be a combination of multiple choice and short answer questions.

For practical assessment, all procedures and methods for the modules must be assessed on a sessional basis. Guidance is provided below under Planning for assessment.

## **Final assessment**

Final assessment shall also be in two parts: theoretical assessment and practical assessment.

For the final practical assessment, each student shall be assessed over a period of 4-5 hours session. During this period, each student must be assessed on his ability to perform a complete job for all Technical and functional modules.

Generic modules shall be assessed comprising with other modules at the time of final assessment. Practical work for this module could be assessed on a sessional basis.

## Planning of assessment.

Planning of assessment will be done by the assessment Centre as per CBT/A policy. But for development assessment it could be done by the Trainer during the course.

As for final assessment as concern, certified assessor must be contacted and the assessor must meet the needs of the students and the training provider. For example, where two assessors are conducting the assessment, there must be a maximum of five students per assessor. In this example, a group of 20 students shall therefore require assessments to be carried out over a four-day period. For a group of only 10 students, assessments would be carried out over a two-day period only or it could be formulated as per CBT/A Centre policies.

## Complete list of tools and equipment

S. No	Description	Quantity
1	Blower	As per Requirement
2	Chisel	As per Requirement
3	Drill bits	As per Requirement
4	Allen key set	As per Requirement
5	Files	As per Requirement
6	Goggles (goggles)	As per Requirement
7	Gloves	As per Requirement
8	Grip plier	As per Requirement
9	Hacksaw	As per Requirement
10	Hammers	As per Requirement
11	Marking punch	As per Requirement
12	Measuring tape	As per Requirement
13	Micrometers	As per Requirement
14	Nose plier	As per

		Requirement
15	Open spanner set	As per Requirement
16	Phase tester	As per Requirement
17	Plier	As per Requirement
18	Ring spanner set	As per Requirement
19	Scissors	As per Requirement
20	Screw driver set	As per Requirement
21	Screw wrench	As per Requirement
22	Side cutter	As per Requirement
23	Crimping Tool	As per Requirement
24	Solder iron	As per Requirement
25	Spanner box	As per Requirement
26	Steel roll/Steel wire	As per Requirement
27	Sucker	As per Requirement
28	Silicone Gun	As per Requirement
29	Spirit Level	As per Requirement
30	Electric Drill Machine	As per Requirement
31	Hand Grinding Machine	As per Requirement
32	Thimble plier	As per Requirement
33	Tongs (sunny)	As per Requirement
34	Vernier caliper	As per Requirement
35	Wire gauge	As per Requirement

36	Wire stripper	As per Requirement
37	Adjustable Wrench	As per Requirement
38	Satellite Finder	As per Requirement
39	Multi-meter	As per Requirement
40	Digital Compass	As per Requirement
41	Wire Tester	As per Requirement
42	LAN Tester	As per Requirement
43	Rivet Gun	As per Requirement
44	Emergency lamp	As per Requirement
45	Coaxial Cable Stripper	As per Requirement
46	Cable Compression Tool.	As per Requirement
47	Air compressors.	As per Requirement
48	Clamp meter.	As per Requirement
49	Bench voice.	As per Requirement
50	Drill machine.	As per Requirement
51	Dryer.	As per Requirement
52	Hand grinding machine	As per Requirement



S. No.	Items
1.	Different Tags and Locks
2.	Process SOPs
3.	Equipment Maintenance Manuals
4.	Log Book
5.	Handbooks
6.	Design Books/ Sheets
7.	Pencils
8.	Erasers
9.	Pencil Sharpeners
10.	Paper Cutter
11.	Scissors
12.	Color Pencils
13.	White chart paper
14.	Brown Sheets
15.	White Board Markers (red, blue, green, black)
16.	Permanent markers (black)
17.	File covers

## Credit values

The credit value of the National Certificate Level 1-4 in Satellite Dish Installer is defined by estimating the amount of time/ instruction hours required to complete each competency unit and competency standard. The NVQF uses a standard credit value of 1 credit = 10 hours of learning (Following TVET guidelines).

The credit values are as follows:

Code	Name of Duty or (Module)	Category	Estimated Hours	Credit
102200843	Comply with Work Health and Safety Policies	Generic	30	3
041700838	Obey the Workplace Policies and Procedures	Generic	20	2
001100850	Follow Basic Communication Skills (General)	Generic	50	5
061100855	Operate Computer Functions(General)	Generic	50	5
101200828	Demonstrate Basic Literacy Skills	Generic	50	05
000000000	Maintain Tools and Equipment	Technical	50	05
102200844	Comply Personal Health and Safety Guidelines	Generic	30	3
041700839	Communicate the Workplace Policy and Procedure	Generic	20	2
001100851	Perform Basic Communication (Specific)	Generic	30	3
061100856	Perform Basic Computer Application (Specific)	Generic	40	4
101200831	Demonstrate Basic Numeracy Skills	Functional	20	02
000000000	Develop Basic Electrical/ Electronic Skills (Naseer sab)	Technical	150	15
000000000	Perform Cable Connection	Technical	100	10
000000000	Assemble Dish Antenna	Technical	200	20
102200846	Apply Work Health and Safety Practices (WHS)	Generic	30	3
041700840	Identify and Implement Workplace Policy and Procedures	Generic	20	2
001100852	Communicate at Workplace	Generic	30	3
061100858	Perform Computer Application Skills	Generic	40	4

041300867	Manage Personal Finances	Generic	30	3
000000000	Mount Dish for Uplink / Downlink	Technical	50	5
000000000	Perform Tuning	Technical	150	15
000000000	Contribute to Work Related Health and Safety (WHS) Initiatives	Generic	30	3
000000000	Analyze and Develop Workplace Policy and Procedures	Generic	30	3
000000000	Perform Advanced Communication	Generic	30	3
000000000	Develop Advance Computer Application Skills	Generic	40	4
000000000	Manage Human Resource Services	Generic	20	2
041300860	Develop Entrepreneurial Skills	Generic	30	3
000000000	Implement Network Security	Technical	150	15
000000000	Plan Work	Technical	50	5
000000000	Perform Troubleshooting	Technical	200	20
000000000	Conduct Site Survey	Technical	200	20

