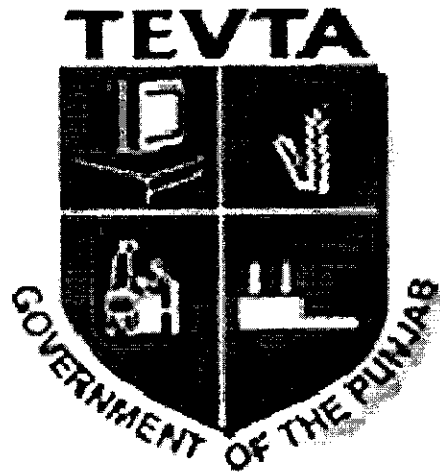


GOVERNMENT OF THE PUNJAB  
TECHNICAL EDUCATION & VOCATIONAL  
TRAINING AUTHORITY



CURRICULUM FOR  
TUNNEL FARMING  
(6 – Months Course)

Revised April 2016

APPROVED

Date: 7-4-16

Sign: 

CURRICULUM SECTION  
ACADEMICS DEPARTMENT

96-H, GULBERG-II, LAHORE

Ph # 042-99263055-9, 99263064

[gm.acad@tevta.gop.pk](mailto:gm.acad@tevta.gop.pk), [manager.cur@tevta.gop.pk](mailto:manager.cur@tevta.gop.pk)

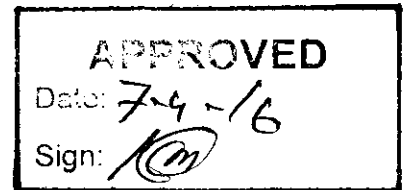
## **TRAINING OBJECTIVES**

Pakistan is developing country with a strong Agriculture base. Vegetables are not only important part of our food, they are also more profitable as compared to other crops. Mostly the vegetables come earlier in market from Sind Province and sale out at very high prices as compared to Punjab. In Punjab mostly vegetables comes in market at normal time, when their demand is less, so sale out at low prices. Due to this reason farmer of Punjab Province gets less price per acre. Some time they cannot meet their expenses. Due to increase in population and decrease in cultivated area day by day, now it becomes necessary to increase the production per acre and reduce the expenses on the cultivation.

Tunnel Farming is becoming more popular now a day because by the help of this technology, we can grow off season vegetables in Green House/Tunnels. The production of different vegetables in Tunnel is 3-times more as compared to normal growing. The prices of off season vegetable are also high. Mostly the summer vegetable are grown in winter under Tunnel e.g. Tomatoes, Shimla Mirch, Green Mirch, Water Mellon, Cucumber etc. The main objective is to get more from less area on less expense. The trainees also learn basic Functional English and I.T. fundamentals.

## **CURRICULUM SALIENTS**

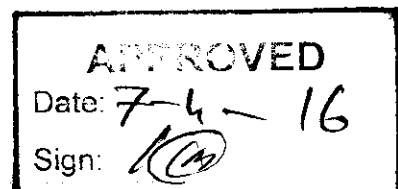
Entry Level	:	Middle
Duration of Course	:	6-Months
Total Training Hours	:	800 Contact Hours
Training Methodology	:	Practical 80%
	:	Theory 20%
Medium of instructions	:	Urdu / English



**SKILL COMPETENCY DETAILS**

On successful completion of this course, the trainee should be able to:-

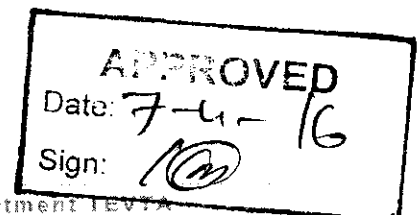
1. Understand how the yield/acre can be increase with less expense.
2. Practical know how regarding preparation and Farming under Tunnel technology.
3. Capable of to perform a particular task.
4. Identify the problems during cultivation and their solution.
5. Identify good quality seed, proper use of water & fertilizer at right time and right dose.
6. Identify soil type, its preparation and its best use.
7. Grow different vegetable under tunnel, how to maintain and protect from pest and diseases.
8. Calculate cost benefit ratio for comparison ( Field vs Tunnel farming)



## **KNOWLEDGE PROFICIENCY DETAILS**


On successful completion of this course, the trainee should be able to:-

1. Aware and familiar of Tunnel Farming.
2. How to prepare different Tunnel structure and successful crop growing.
3. Understand the innovations in Agriculture for boost up the production per acre.
4. Growing of different vegetables under tunnel and their maintenance.
5. Identify the different insect/pest, their mode of damage and control under tunnel farming.
6. Understand the marketing procedure and hindrance involved in it and their solution.
7. Understand the proper time of sowing & marketing in order to achieve the main objective of tunnel farming.
8. Understand different requirements of the vegetable crop at proper time in tunnel.



**SCHEME OF STUDIES****Tunnel Farming  
(6-Months)**

Sr. No	Main Topics	Theory Hours	Practical Hours	Total Hours
1.	Training Introduction	3	0	3
2.	Introduction of Tunnel	11	2	13
3.	Preparation of Tunnel	16	72	88
4.	Soil Preparation	5	64	69
5.	Mulching	2	8	10
6.	Nursery Preparation	23	62	85
7.	Seed	2	10	12
8.	Growing of Vegetable in Tunnel	23	130	153
9.	Use of Irrigation	4	8	12
10.	Use of Fertilizer	5	10	15
11.	Identification of Pest & Diseases	23	62	85
12.	Use of Weedicide & Pesticide	10	40	50
13.	Harvesting, Packing, Storage	7	48	55
14.	Marketing	2	28	30
15.	I.T Fundamentals	8	32	40
16.	Functional English	16	64	80
<b>Total</b>		<b>160</b>	<b>640</b>	<b>800</b>

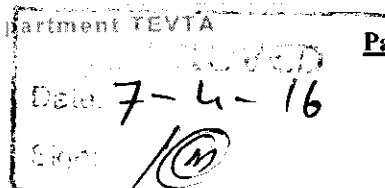
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**Detail of Course Contents**  
**Tunnel Farming**  
**(6-Months)**

S. No.	Detail of Topics	Theory Hours	Practical Hours
1.	<b>Training Introduction</b> 1.1. Explain the objective of the trade under learning 1.2. Importance of the Tunnel Technology 1.3. Need of the Time	01 01 01	0
2.	<b>Introduction of Tunnel</b> 2.1. Kind and objective of Tunnel Farming 2.2. Vegetable grown under these Tunnels 2.3. Cost benefit ratio	03 06 02	2
3.	<b>Preparation of Tunnel</b> 3.1. Installation of different types of Tunnel 3.2. Material and Equipments used 3.3. Life of Different Tunnel Structures 3.4. Tour to Different Farm involved in Tunnel Farming	08 04 02 02	72
4.	<b>Soil Preparation</b> 4.1. Soil & its type, Soil Structure and texture 4.2. Soil PH, Soil Organic Matter & Cultivation of Soil 4.3. Preparation of Beds and furrows	02 02 01	64
5.	<b>Mulching</b> 5.1. Definition and Type of Mulching and Importance of Mulching in Tunnel	01	8

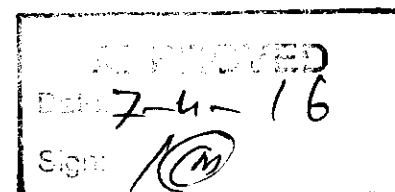
## Tunnel Farming (6- Months)

	Farming		
	5.2. Different Material used for artificial Mulching	01	
<b>6.</b>	<b>Nursery Preparation</b>		<b>62</b>
	6.1. Importance of Nursery Growing	02	
	6.2. How to grow for different Vegetable	07	
	6.3. Agronomic practices required	07	
	6.4. Time of Transplantation	07	
<b>7.</b>	<b>Seed</b>	<b>2</b>	<b>10</b>
	7.1. Definition of Seed, its types and importance	01	
	7.2. How to identify good quality seed, Use of Hybrid Seeds	01	
<b>8.</b>	<b>Growing of Vegetable in Tunnel</b>		<b>130</b>
	8.1. Production Technology of Different Vegetable under different types of Tunnels	13	
	8.2. Their management	10	
<b>9.</b>	<b>Use of Irrigation</b>		<b>8</b>
	9.1. Kind of irrigation required for different crops	02	
	9.2. Time of application	01	
	9.3. Quantity of Water Required	01	
<b>10.</b>	<b>Use of Fertilizer</b>		<b>10</b>
	10.1. Importance and Types of different Fertilizer required	03	
	10.2. Proper Time and dose required	02	
<b>11.</b>	<b>Identification of Pest &amp; Diseases</b>		<b>62</b>
	11.1. Identification of different insect/pest and diseases for different vegetable crops	08	
	11.2. Their life cycle and mode of damage	05	
	11.3. Threshold Level	03	



Tunnel Farming (6- Months)

	11.4. Their control	05	
	11.5. Types of different control	02	
<b>12.</b>	<b>Use of Weedicide &amp; Pesticide</b>		<b>40</b>
	12.1. Importance of Weedicide and Pesticide	02	
	12.2. The types and nature of Weedicide and Pesticide	02	
	12.3. Types of Weedicide and Pesticides required	02	
	12.4. Their dose and time of application	01	
	12.5. How to calibration of tank, spray and type of nozzle used	01	
	12.6. Their Beneficial and harmful effect		
<b>13.</b>	<b>Harvesting, Packing, Storage</b>		<b>48</b>
	13.1. Proper Time and method of Harvesting of different vegetable	02	
	13.2. Proper Packing and Storage for increasing the shelf life of different vegetables	02	
	13.3. Visit to Different Model Farm having ideal packing and storage facilities	03	
<b>14.</b>	<b>Marketing</b>		<b>28</b>
	14.1. Definition and Importance of Marketing	01	
	14.2. Visit to different markets involved in sale of vegetable	01	
<b>Total Hours</b>		<b>136</b>	<b>544</b>

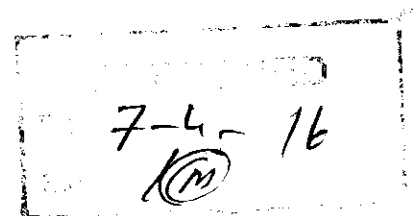




## LIST OF PRACTICALS

### Tunnel Farming

1. Installation of different tunnels.
2. To work on growing of different vegetables under these tunnel.
3. Preparation of soil for sowing of vegetables.
4. Nursery preparation for different vegetables.
5. Plant protection measures for different crops under tunnels.
6. Visit to different model farms involved in packing and storage.
7. Visit to the sabz mandi, for seeing how marketing of vegetable proceeds.




**SCHEME OF STUDIES**  
**Functional English**

S.No	Main Topics	Theory Hours	Practical Hours	Total Hours
1.	Use of past indefinite tense	2	6	8
2.	Use of 'was' 'were' ' questions and negatives	3	6	8
3.	Explaining a situations/ analysis	2	6	8
4.	Communication in writing	2	6	8
5.	Comprehension	1	6	7
6.	Application/ C.V.	1	6	7
7.	Dialogues	1	9	10
8.	Understand vocabulary	1	3	4
9.	Writing complaints/ answers to complaints	1	9	10
10.	Interviews	2	7	10
<b>Total</b>		<b>16</b>	<b>64</b>	<b>80</b>

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**DETAIL OF COURSE CONTENTS**  
**Functional English**

S. No	Detail of Topics	Theory Hours	Practical Hours
1	<b>Use of past indefinite tense</b> 1.1 Describing past events	2	6
2	<b>Use of 'was' 'were' ' questions and negatives</b>	2	6
3	<b>Explaining a situations/ analysis</b> 3.1 Making a plan 3.2 Visiting factory area 3.3 Giving justifications	2	6
4	<b>Communication in writing</b> 4.1 Asking for list of stationery items 4.2 Submitting report of performance of team of technicians 4.3 Submitting joining report	2	6
5	<b>Comprehension: practice sets</b>	2	6
6	<b>Job application/C.V.</b>	1	6
7	<b>Dialogues</b>	1	9
8	<b>Understand vocabulary</b>	1	3
9	<b>Writing complaints/ answers to complaints</b>	1	9
10	<b>Interviews</b>	2	7
<b>Total</b>		<b>16</b>	<b>64</b>

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**LIST OF PRACTICALS**  
**Functional English**

S. No.	Practical
1.	Group discussion
2.	Interviews
3.	Role play

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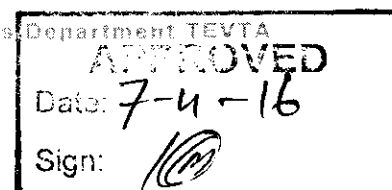
**SCHEME OF STUDIES**  
**I.T Fundamentals**

S. No	Main Topics	Theory Hours	Practical Hours	Total Hours
1.	Introduction to Computers	2	6	8
2.	Typing - Microsoft Word	4	14	18
3.	Internet & Electronic Mail	2	12	14
<b>Total</b>		<b>8</b>	<b>32</b>	<b>40</b>

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**DETAIL OF COURSE CONTENTS**  
**I.T Fundamentals**

S. No	Detail of Topics	Theory Hours	Practical Hours
1	<b>Introduction to Computers</b> 1.1 What is a computer- Definition, functions and general features? 1.2 What is Hardware – 1.2.1 Computer parts and units 1.2.1.1 Input Unit - Keyboard, Mouse etc. 1.2.1.2 Central Processing Unit 1.2.1.3 Output Unit 1.3 What is Software – 1.3.1 Electronic Parts of a Pc it is 1.3.1.1 Software and Its types 1.3.1.2 System Software, Application Software 1.4 Working with windows Operating System 1.4.1 How does windows desktops work? 1.5 What are the Icons, Shortcuts and other graphic, 1.5.1 How to see computer contents on different drives etc	2	6
2	<b>Typing and Word processing (MS Word)</b> 2.1 Proper way of typing correct and speedy - getting familiar with the keys 2.2 Where to type in computer? How to save a file? How to get it back? Where to find your saved work? 2.3 How to get it printed?	4	14
3	<b>Emailing and Internet Surfing</b> 3.1 How to go to Internet, what is required for an internet connection etc. 3.2 How to use email? How to search on web? Etc 3.3 How to make new email account, login and logout an email account etc.?	2	12
<b>Total</b>		<b>8</b>	<b>32</b>



**LIST OF PRACTICALS**  
**I.T Fundamentals**

S. No.	List of Practical
1.	Turn On/Off and setting of power supply
2.	Accessing The Desktop
3.	Using of Icons and Shortcuts
4.	Setting / customizing the desktop
5.	Viewing the contents of computer – Directory
6.	Setting the view of a folder
7.	Copying, Deleting and Moving Files in a folder
8.	Working with different Applications
9.	Opening MS Word for typing
10.	First lesson of Typing A S D F
11.	Second Lesson of typing J K L ;
12.	Third Lesson U I O P
13.	Fourth Lesson R E W Q
14.	Fifth Lesson N M , .
15.	Sixth Lesson V C X Z
16.	Seventh Lesson All letter using R index Finger
17.	Eighth Lesson All letter using L index Finger
18.	Formatting in MS Word Bold, Italic etc.
19.	Page Setting/ Page Layout
20.	Using Internet
21.	Opening Email, making new account
22.	Sending Receiving Emails
23.	Downloading and uploading attachments etc.

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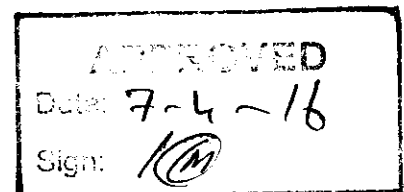
**LIST OF LABS**  
**(6-Months)**

**Tunnel Farming**

- 04 Kanal agriculture land is required

**I.T Fundamentals**

- Computer Lab



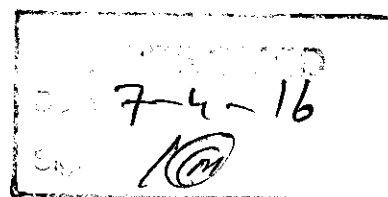


**LIST OF TOOLS, EQUIPMENT & MACHINERY  
FOR CLASS OF 25**

<b>Name of Trade</b>	<b>Tunnel Farming</b>
<b>Duration of Course</b>	<b>(6-Months)</b>


**Tunnel Farming**

S. No.	Name of Item /Equipment	Quantity
1.	Tractor Fiat-480 (can be hired for cultivation)	01
2.	Cultivator	01
3.	Ridger	01
4.	Rotavator	01
5.	Spray Machines ( knap sack sprayer)	05
6.	Suhaga	01
7.	Spade, Ramba, Kasola and other tillage implements	10 each
8.	Different Tunnel Structure Low Tunnel 20 x 160 sq.ft Walk- in Tunnel 20 x 160 sq.ft	1 each


  
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**COMPUTER LAB**

S. No.	Tools / Equipment	Quantity
1.	Desktop computer (Specifications as per notification issued by MIS Section, TEVTA)	26 (1 for each student & 1 for the teacher)
2.	Printer (Laser)	01
3.	Scanner	01
4.	Internet Connection (At least 1 MB speed)	01
5.	UPS 10 KVA	01
6.	Air Conditioner 1 ½ Ton	02
7.	Multimedia Projector	01

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**LIST OF CONSUMABLE MATERIALS**

**FOR CLASS OF 25**

**(6-Months)**

**Tunnel Farming**

S.No	Material	Quantity
1	Transparent / White Sheet	125KG
2	Tissue Sheet	100KG
3	Mulching Sheet / Black Paper	25KG
4	Seeds of different vegetables	Cucumber 250gram, Chile 30 grams Biter gourd 300 grams, Water Melon 100grams, Melon 75 grams etc
5	Different Fertilizers	DAP 25 KG, UREA 75 KG, SOP 75KG' NP 50KG
6	Different Weedicides	Gramixone 1-Liter, Stomp 1-Liter
7	Different Pesticides	Diptrex 2 KG, Confidor 2-Liter, Advantage 2-Liter, Talstar 2-Liter Abamacton 2-Liter, Proclaim 3-Liter Dose may be changed as per requirement
8	Different Fungicides	Redomil gold 2KG, Intracol 2KG Karzait 1KG Dose may be changed as per requirement

**Functional English**

S. No.	Item	Quantity
1.	Stationary	As per requirement
2.	Board Markers	As per requirement

**I.T Fundamentals**

S. No.	Item	Quantity
1.	Printing Paper	As per requirement
2.	Printer Toner	As per requirement

**MINIMUM QUALIFICATION OF INSTRUCTOR**

**Tunnel Farming**

- M.Sc. (Hons) Agri with major subject Agronomy/ Horticulture / Soil Science

OR

- B.Sc. (Hons) Agri with major subject Agronomy/ Horticulture / Soil Science

**Functional English**

- M. A (English)

**I.T Fundamentals**

- DAE CIT/ BCS from HEC recognized university

## **REFERENCE BOOKS**

### **Tunnel Farming**

1. Crop production by Dr.Shafi Naazir
2. Subzian ki kasht by Dr. Muhammad Aslam Perwaiz, Ch. Muhammad Ayoub, Dr. Mumtaz Akhtar cheema
3. A Book on Horticulture (Urdu) by Sher Muhammad, UAF, Faisalabad.

### **Functional English**

1. High School English Grammar By Wren & Martin
2. Oxford English Grammar

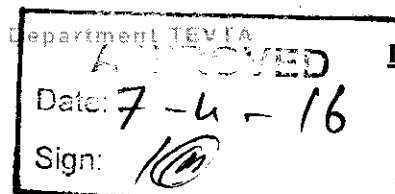
### **I.T Fundamentals**

1. Introduction to Computer by Peter Norton
2. 2007 Microsoft® Office System Step by Step by Joyce Cox, Steve Lambert and Curtis Frye
3. Internet and E-mail with Windows 7 by Studio Visual Steps

## EMPLOYABILITY OF PASS OUTS

The pass outs of this course may find job / employment opportunities in the following areas / sectors: -

- Private sector.
- Self Business.
- Different NGO,s relevant to Agriculture.



## List of Trade Related Jargon

- Pest
- Spade
- Calibration
- Shelf Life
- Life Cycle
- Threshold Level
- Irrigation
- Organic Matter
- Vegetables
- Agronomic Practices
- Transplantation
- Beneficial Insect
- Harmful Insect
- Production
- Insect Pest Management
- Agriculture Land
- Off Season Vegetable
- Soil Preparation
- Bed Formation
- Mulching
- Harvesting
- Picking
- Marketing
- Cost Income Ratio
- Cultivation
- Sowing
- Netting
- Weeding
- Pesticides
- Weedicides

**Curriculum Revision Committee**

1. **Engr. Munir Hussain,** **Convener**  
Chief Instructor,  
GCT Sahiwal
  
2. **Mr. Saleem Haider,** **Member**  
Agriculture Officer,  
PGICA Chak-5, Faiz, Multan

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