

Curriculum For “Pesticide & Fertiliser Technology”

(Assistant Supervisor)

(Level - 4)



27th to 30th December 2021



**National Vocational & Technical
Training Commission**

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Introduction

Definition/ Description of the training programme for *Pesticides & Fertilisers Technology*

Agriculture is considered the backbone of Pakistan's economy, which relies heavily on its major crops. Pakistan's agriculture sector plays a central role in the economy as it contributes 18.9 percent to GDP and absorbs 42.3 percent of labour force. It is also an important source of foreign exchange earnings and stimulates industrial growth by supplying byproducts. According to the 6th Population and Housing Census in Pakistan 2017, the country's population is growing at the rate of 2.4 percent per annum. This rapid increase in population is raising demand for agricultural products and services. The agricultural production is mainly depends upon the use of mineral Fertilisers and other inputs.

Pesticides and Fertilisers have extensive applications all around the globe including developed and developing countries. The economy and prosperity of the agro based economies mainly depends on the Fertilisers and Pesticides industries so they are considered as a vital component for modern farming. The demand for the use of Fertilisers and Pesticides is increasing day by day due to rapid increase in food demand. These industries help to create business, and jobs opportunities at the national and international levels.

Globally, efficient application of fertilizer and Pesticides is crucial for agriculture sector. Developed countries have launched such a strategy that their agriculture sector is achieving its objective of increased yield. This happened due to the collaboration of industries with research and academia. Whereas, countries like Pakistan are allocating subsidies on Fertilisers and pesticides, but are unable to achieve their objective of providing sufficient food to its people on reasonable prices. The main purpose of this course is to enable the student to play his/her vital role in country's economy through modern knowledge driven approach. In short, the main objective of this project is to equip the students with knowledge and skills so that they could be able to handle the issues related with rational use of inputs, minimize the economic cost and can help to enhance agricultural yield potential. The effort of new curriculum development by NAVTTC will help the agro industry of Pakistan to hire trained and skilled manpower that will contribute in the improvement of livelihood. It will also help to establish the link between industry, academia and farming community.

The “Fertilizer and pesticide technicians” will be vigilant of the challenges that our economy is facing and the long term requirements of food supply. They should also aware of the latest tools and techniques that can be used to upgrade the agricultural sector of Pakistan.

Purpose of the Training Programme

The purpose of this qualification (set of four occupations) is to set professional standards for Fertilizer and Pesticide technicians and to train the unskilled workers (men and women) across the country. The skilled labors will serve as key elements to improve the Agriculture Industry. The agriculture sector is diversified and dynamic in nature. Upon successful completion of this course the trainees should be able to know the basic and specific objectives of these qualifications are as under:

- Improve the professional competence regarding fertilizer and pesticide industry
- Capacitate the local community and trainers in modern Competency Based Training (CBT)
- Provide flexible pathways and progressions in fertilizer and pesticide industry
- Enable the trainees to perform their duties in efficient manner
- Establish a standardized and sustainable system of training in fertilizer and pesticide industry in Pakistan
- Understand the marketing mechanisms of Fertilisers and Pesticides products.
- Understand the issues related to agriculture industry
- Know the relevant industry stakeholders & their role

Overall Objectives of Training Programme

The primary objective of this training program is to provide the trainees with updated knowledge and skills required for pesticide & fertilizer technology to cope the challenges of the pesticide & fertilizer industry. After qualifying the course at different levels (Level 1 – 5), the students will be able to get job in the pesticide & fertilizer industry and also be able to perform as entrepreneurs. The contents of the course are specifically designed in such a way that it covers all the major pesticide & fertilizer aspects hence, the students are sufficiently exposed to operational requirements of this sector and are ready to perform their duties confidently.

The main objectives of this project are to:

- Improve the quality of training delivery and setting national benchmarks for training of agriculture technology (Level 1-5) at national level.
- Provide progressive and flexible learning environment for trainees.
- Provide basics for competency-based assessment.
- Establish a standardized and sustainable training system.

Competencies to Be Gained After Completion Of Course

- **A-** Establish and maintain the occupational Health and safety system
- **B-** Perform Advance communication
- **C-** Analyse Workplace Policies and Procedures
- **D-** Perform preparation of on-farm compost using Organic/inorganic Compounds
- **E-** Apply Biological Control Agents (BCA's)
- **F-** Perform First Aid for Pesticide Poisoning
- **G-** Perform Vermicomposting
- **H-** Perform Urban Pest Management

Possible Available Job Opportunities Available Immediately and Later In The Future

- Pesticides & Fertilisers Application Assistant Supervisor
- Pesticides Application Assistant Supervisor
- Fertilisers Application Assistant Supervisor
- Pest Control Assistant Supervisor
- Assistant Farm Manager
- Assistant Farm Supervisor
- Assistant Pest Control Inspector/Supervisor

Trainee Entry Level

Middle or Equivalent (with English, Urdu and Numeracy reading and writing skills)

Minimum Qualification of Trainer

Teaching staff should have DAE with two years' experience or 2 years Certificate with five years' experience in Pesticides & Fertilisers. They should also hold or be working towards a formal teaching qualification.

Other formal qualifications in the relevant field of Agriculture would be useful in addition to the above.

Recommended Trainer: Trainee Ratio

The recommended maximum trainer: trainee ratio for this programme is 1 trainer for 25 trainees.

Medium of instruction i.e. language of instruction

Instruction will be Urdu and English.

Duration of the Course (Total Time, Theory & Practical Time)

This curriculum comprises 09 modules. The recommended delivery time is 1200 hours. Delivery of the course could therefore be full time, 5 days a week. 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 follow:

Module	Theory ¹ Days/hours	Workplace ² Days/hours	Total hours
Module 1: Establish and maintain the occupational Health and safety system	10	20	30
Module 2: Perform Advance Communication	10	20	30
Module 3: Analyse Workplace Policies and Procedures	10	20	30
Module 4: Perform preparation of on-farm compost using Organic/inorganic Compounds	50	210	260
Module 5: Apply Biological Control Agents (BCA's)	70	210	280
Module 6: Perform First Aid for Pesticide Poisoning	10	20	30
Module 7: Perform Vermicomposting	50	210	260
Module 8: Perform Urban Pest Management	70	210	280

¹ Learning Module hours in training provider premises

² Training workshop, laboratory and on-the-job workplace

Summary of Competency Standards

The proposed curriculum is composed of 23 cores along with generic modules that will be covered in 3600 hrs. It is proposed that the course will be delivered in three years period (Level 1-5). The distribution of contact hours (practical & theory) is given below:

- **Theory: (20%)** **Practical (80%)**
- **Theory: 280 hours** **Practical: 920 hours**

Sequence of the Modules

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 needs of Pakistan.

The distribution table is shown below:

Assistant Supervisor - 12 Months		
Module 1: Establish and maintain the occupational Health and safety system 30 Hours		Module 6: Perform First Aid for Pesticide Poisoning 30 Hours
Module 2: Perform Advanced Communication 30 Hours		
Module 4: Perform preparation of on-farm compost using Organic/inorganic Compounds 260 Hours	Module 5: Apply Biological Control Agents (BCA's) 280 Hours	
Module 7: Perform Vermicomposting 260 Hours	Module 3: Perform Urban Pest Management 280 Hours	
Module 3: Analysis Workplace Policy and Procedures 30 Hours		

Summary – overview of the curriculum

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 1: Establish and Maintain the Occupational Health and Safety System Aim: After successful completion of this module, the trainee is competent in Contributing to Establish and Maintain the Occupational Health and Safety System	LU1: Organise consultation process LU2: Design Occupational Health and Safety framework LU3: Design and implement an Occupational Health and Safety awareness training program LU4: Establish, monitor and maintain Occupational Health and safety system LU5: Establish and maintain a system for accident investigation LU6: Evaluate the organization's Occupational Health and Safety system and related policies procedures and programs	10	20	30
Module 2: Perform Advanced Communication Aim: After successful completion of this module, the trainee is competent in Performing Advanced Communication	LU1: Demonstrate professional skills LU2: Plan and Organize work LU3: Provide trainings at workplace	10	20	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 3: Analysis Workplace Policy and Procedures Aim: After successful completion of this module, the trainee is competent in Analysis Workplace Policy and Procedures	LU1: Manage work timeframes LU2: Manage to convene meeting LU3: Set and meet own work priorities at instant LU4: Develop and maintain professional competence LU5: Follow and implement work safety requirements	10	20	30
Module 4: Perform preparation of on-farm compost by using organic/inorganic compounds Aim: After successful completion of this module, the trainee is competent in performing preparation of on-farm compost by using organic/inorganic compounds	LU1. Select Suitable Materials to prepare a compost LU2. Perform Mixing of Materials (Composting) LU4. Perform Analysis of compost LU5. Apply the compost using appropriate method	50	210	260

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 5: Perform Vermicomposting Aim: After successful completion of this module, the trainee is competent in Performing Vermicomposting	LU1: Perform collection of farm waste LU2: Perform Pre-Application tasks LU3: Perform application of Worms in material LU4: Perform post management and care of Compost LU5: Perform application of Vermicompost in soil	50	210	260
Module 6: Perform First Aid for Pesticide Poisoning Aim: After successful completion of this module, the trainee is competent in Coordinating Production Processes	LU1: Identify symptoms of Pesticide poisoning LU2: Perform First Aid accordingly	10	20	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 7: Apply Biological Control Agents BCA's Aim: After successful completion of this module, the trainee is competent in Applying Biological Control Agents BCA's	LU1: Select Biological Control Agents LU2: Implement Biological Control Agents	70	210	280
Module 8: Perform Urban Pest Management Aim: After successful completion of this module, the trainee is competent in performing Urban Pest Management	LU1: Conduct preliminary inspection of customer's premises LU2: Prepare the quotation for the customer LU3: Perform Pesticide Application to the target site	70	210	280

Modules

Module 1: Establish and Maintain the Occupational Health and Safety System

Objective of the module: The aim of this module to get knowledge, skills and understanding to maintain personal health, hygiene and safety

Duration: 30hours

Theory: 20 hours

Practical: 10 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Organise consultation process	The trainee will be able to: <ol style="list-style-type: none"> 1. Identify and invite relevant personnel or other representative personnel into the development and maintenance processes. 2. Handle issues raised through consultation according to issue resolution procedures. 3. Verify results from the consultation process and makes it available to relevant personnel. 	<ul style="list-style-type: none"> • Identify and invite relevant personnel or other representative personnel into the development and maintenance processes. • Handle issues raised through consultation according to issue resolution procedures. • Verify results from the consultation process and makes it available to relevant personnel. 	Total: 05hrs Theory: 03hrs Practical: 01hrs	<div>Consumable</div> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners <div>Non Consumable</div> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system 	Class Room/ Site Specific Field Area
LU2: Design Occupational Health and Safety framework	The trainee will be able to: <ol style="list-style-type: none"> 1. Identify hazards and risks correctly and confirm according to occupational health and safety legislation, codes of practice and 	<ul style="list-style-type: none"> • Identify hazards and risks correctly and confirm according to occupational health and safety legislation, codes of practice and prevailing trends. 	Total: 05hrs Theory: 03hrs Practical: 01hrs	<div>Consumable</div> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners <div>Non Consumable</div>	Class Room/ Site Specific Field Area

	<p>prevailing trends.</p> <ol style="list-style-type: none"> 2. Develop procedure for ongoing identification of hazards and risks and integrated within work systems and procedures 3. Develop occupational health and safety policies line with relevant legislation. 4. Incorporate and define occupational health and safety responsibilities and duties into job descriptions/statements. 5. Provide adequate resources in a timely and consistent manner. 6. Develop and implement measures to control assessed risks in accordance with the hierarchy of control, relevant occupational health and safety legislation, codes of practice and trends. 7. Implement interim solutions 	<ul style="list-style-type: none"> • Develop procedure for ongoing identification of hazards and risks and integrated within work systems and procedures • Develop occupational health and safety policies line with relevant legislation. • Incorporate and define occupational health and safety responsibilities and duties into job descriptions/statements. • Provide adequate resources in a timely and consistent manner. • Develop and implement measures to control assessed risks in accordance with the hierarchy of control, relevant occupational health and safety legislation, codes of practice and trends. • Implement interim solutions until a permanent control measure. • Record details clearly and efficiently according to 		<ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • PPEs (Safety glasses, Ear muffs/ear plugs, Protective Gloves, Cap, Safety shoes etc.) 	
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	<p>until a permanent control measure.</p> <p>8. Record details clearly and efficiently according to organisation policy and procedures and relevant legislation</p>	<p>organisation policy and procedures and relevant legislation</p>			
LU3: Design and implement an Occupational Health and Safety awareness training program	<p>The trainee will be able to:</p> <ol style="list-style-type: none"> 1. Communicate procedures to help implement workplace policy 2. Inform those involved in implementing the policy about expected outcomes, activities to be undertaken and assigned responsibilities 	<ul style="list-style-type: none"> • Devise educational information on the occupational health and safety system and make it available to all relevant personnel. • Provide appropriate training to all relevant personnel to enable the implementation of safety procedures 	<p>Total: 05hrs Theory: 03hrs Practical: 02hrs</p>	<p>Consumable</p> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners <p>Non Consumable</p> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Safety manuals 	Class Room/ Site Specific Field Area
LU4: Establish, monitor and maintain Occupational Health and safety system	<p>The trainee will be able to:</p> <ol style="list-style-type: none"> 1. Establish a system for keeping occupational health and safety records in accordance with legislative requirements. 2. Work activities are monitored 	<ul style="list-style-type: none"> • Establish a system for keeping occupational health and safety records in accordance with legislative requirements. • Work activities are 	<p>Total: 06hrs Theory: 04hrs Practical: 02hrs</p>	<p>Consumable</p> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners <p>Non Consumable</p>	Class Room/ Site Specific Field Area

	<p>to ensure that hazard identification and risk assessment and control procedures are effectively adopted.</p> <p>3. Inadequacies in hazard identification, risk assessment and established risk control measures are identified in accordance with the hierarchy of control and reported to designated personnel.</p> <p>4. Amendments to procedures are undertaken through appropriate consultation methods</p>	<p>monitored to ensure that hazard identification and risk assessment and control procedures are effectively adopted.</p> <ul style="list-style-type: none"> Inadequacies in hazard identification, risk assessment and established risk control measures are identified in accordance with the hierarchy of control and reported to designated personnel. Amendments to procedures are undertaken through appropriate consultation methods 		<ul style="list-style-type: none"> White board Multimedia Internet Computer system 	
<p>LU5: Establish and maintain a system for accident investigation</p>	<p>The trainee will be able to:</p> <p>1. A system is developed and implemented for reporting and investigation of all accidents/incidents in accordance with the policies and procedures.</p> <p>2. Training is provided to</p>	<ul style="list-style-type: none"> Explain the system for reporting and investigation of all accidents/incidents according to the policies and procedures. 			<p>Class Room/ Site Specific Field Area</p>

	<p>employees responsible for accident investigation for effective implementation of accident investigation policy.</p> <p>3. Policies and procedures for reporting and investigating all accidents/incidents are reviewed and updated as required</p>	<ul style="list-style-type: none"> • Importance of training to employees responsible for accident investigation • Describe the policies and procedures for reporting and investigating all accidents/incidents 			
<p>LU6: Evaluate the organization's Occupational Health and Safety system and related policies procedures and programs</p>	<p>The trainee will be able to:</p> <p>1. The effectiveness of the occupational health and safety system and related policies, procedures and programs is assessed according to the organization's occupational health and safety policy.</p> <p>2. Improvements to the occupational health and safety system are developed and implemented.</p> <p>3. Compliance with occupational health and safety legislation and codes of practice is assessed to</p>	<ul style="list-style-type: none"> • Importance of occupational health and safety system and related policies, procedures and programs according to the organization 	<p>Total: 06hrs Theory: 04hrs Practical: 02hrs</p>	<p>Consumable</p> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners <p>Non Consumable</p> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system 	<p>Class Room/ Site Specific Field Area</p>

	ensure that legal occupational health and safety standards are maintained				
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Module2: Perform Advance Communication

Objective of the module: The aim of this module to get knowledge, skills and understanding to perform basic communication.

Duration: 30 hours

Theory: 10 hours

Practical: 20 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Demonstrate professional skills	The trainee will be able to: <ol style="list-style-type: none"> Use different modes of communication to communicate <ul style="list-style-type: none"> Speaking Reading Writing Listening Presentation Visual representation etc. Develop CV Skills according requirements Upgrade professional skills by attending trainings, webinars, conferences etc. Perform Continuous professional development as required at workplace Develop interview skills 	<ul style="list-style-type: none"> Importance of different modes of communication to communicate Describe skills for CV <ul style="list-style-type: none"> Creativity. Interpersonal Skills. Critical Thinking. Problem Solving. Public Speaking. Customer Service Skills. Teamwork Skills. Communication, etc. Importance of hard skills 	Total: 11hrs Theory: 04hrs Practical: 07hrs	Consumable <ul style="list-style-type: none"> Notebooks Pencils Erasers Sharpeners Pen Non Consumable <ul style="list-style-type: none"> White board Multimedia Internet Computer system 	Class Room/ Site Specific Field Area

LU2: Plan and Organize work	The trainee will be able to: <ol style="list-style-type: none"> 1. Identify task requirements. 2. Plan steps to complete tasks. 3. Review planning and organizing process. 4. Organize work. 	<ul style="list-style-type: none"> • Importance of task requirements. • Describe the planning and organizing process 	Total: 10hrs Theory: 03hrs Practical: 07hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Pen 	Class Room/ Site Specific Field Area
LU3: Provide trainings at workplace	The trainee will be able to: <ol style="list-style-type: none"> 1. Assess the need for training 2. Prepare trainees for the learning experience 3. Present training session 4. Support trainees in managing their own learning 5. Facilitate group learning 6. Provide opportunity for practice 7. Provide feedback on progress on trainees 8. Review delivery experience 	<ul style="list-style-type: none"> • Explain the need for training • Importance of learning experience for trainees 	Total: 09hrs Theory: 03hrs Practical: 06hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Pen 	Class Room/ Site Specific Field Area

Module 3: Analyse with Workplace Policy and Procedures

Objective of the module: The aim of this module to get knowledge, skills and understanding to analyse with workplace policy and procedures

Duration: 30 hours **Theory:** 10 hours **Practical:** 20 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Manage work timeframes	The trainee will be able to: <ol style="list-style-type: none"> 1. Complete work tasks within deadlines in according to order of priority 2. Supervisors are informed of any delays in work times or projects 	<ul style="list-style-type: none"> • Importance of time management strategies 	Total: 06hrs Theory: 02hrs Practical: 04hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • Pen Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system 	Class Room/ Site Specific Field Area
LU2: Manage to convene meeting	The trainee will be able to: <ol style="list-style-type: none"> 1. Develop agenda in line with meeting purpose 2. Select participants and notify them accordingly 3. Carryout meeting arrangements according to the time 	<ul style="list-style-type: none"> • Explain meeting terminologies • Importance of structures and arrangement of meeting • Explain the organizational 	Total: 06hrs Theory: 02hrs Practical: 04hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • Pen Non Consumable <ul style="list-style-type: none"> • White board 	Class Room/ Site Specific Field Area

	4. Record the minutes of the meeting	procedures and policies regarding meetings, chairing and minutes.		<ul style="list-style-type: none"> • Multimedia • Internet • Computer system 	
LU3: Set and meet own work priorities at instant	The trainee will be able to: <ol style="list-style-type: none"> 1. Take initiative to prioritize and facilitate competing demands to achieve organizational goals and objectives 2. Use technology efficiently and effectively to manage work priorities and commitments 3. Maintain appropriate work-life balance 	<ul style="list-style-type: none"> • Describe Healthy work life balance 	Total: 06hrs Theory: 02hrs Practical: 04hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • Pen Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system 	Class Room/ Site Specific Field Area
LU4: Develop and maintain professional competence	The trainee will be able to: <ol style="list-style-type: none"> 1. Assess personal knowledge and skills against competency 2. Participate in networks to enhance personal knowledge, skills and work relationships 3. Seek feedback from employees, clients and 	<ul style="list-style-type: none"> • Explain the professional competence • Importance of feedback 	Total: 06hrs Theory: 02hrs Practical: 04hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • Pen Non Consumable <ul style="list-style-type: none"> • White board • Multimedia 	Class Room/ Site Specific Field Area

	colleagues to develop and improve competence			<ul style="list-style-type: none"> • Internet • Computer system 	
LU5: Follow and implement work safety requirements	The trainee will be able to: <ol style="list-style-type: none"> 1. Identify and report emergency incidents 2. Practice organizational policy and procedures for responding to emergency incidents 3. Identify and implement workplace procedures and work instructions for controlling risks 	<ul style="list-style-type: none"> • Explain the emergency incidents • Importance of organizational policy and procedures for emergency incidents 	Total: 06hrs Theory: 02hrs Practical: 04hrs	<div>Consumable</div> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • Pen <div>Non Consumable</div> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system 	Class Room/ Site Specific Field Area

Module 4: Perform Preparation of On-Farm Compost by Using Organic/Inorganic Compounds

Objective of the module: After completing this module, learner will be able to perform preparation of on-farm compost using Organic/inorganic Compounds. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Duration: 260 hrs.

Theory: 50 hrs.

Practical: 210 hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Select Suitable Materials to prepare a compost	The trainee will be able to: <ol style="list-style-type: none"> 1. Identify on-farm available and suitable organic/inorganic materials 2. Perform the selection of Materials (organic/inorganic) according to the requirement 3. Calculate the proportion of materials based on C/N (Carbon/Nitrogen) ratio 	<ul style="list-style-type: none"> • Describe Compost • Organic Materials (Cow dung, waste paper, leaves, vegetable peels, etc.) • Inorganic Materials (Chemicals, In-organic Fertilisers, salts, etc.) • Advantages and disadvantages (Pros/Cons) of Organic and Inorganic Materials. • Describe Carbon/Nitrogen Ratio 	Total: 55hrs Theory: 20hrs Practical: 35hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Spade 	Class Room/ Site Specific Field Area

		<u>Practical Activity:</u> <ol style="list-style-type: none"> 1. Identify and enlist available Organic/Inorganic Materials on the basis of Carbon/Nitrogen Ratio. 2. Calculate Carbon/Nitrogen Ratio from given Materials. 		<ul style="list-style-type: none"> • Calculator • Soil augers • Gardening tool kits 	
LU2: Perform Mixing of Materials (Composting)	The trainee will be able to: <ol style="list-style-type: none"> 1. Perform pre-mixing tasks (ditching, mulching, covering, etc.) 2. Perform mixing by incorporation of Effective Microbes (EM) solution/Plant Growth Promoting Rhizobacteria (PGPR) 3. Perform post mixing tasks based on moisture content, temperature, decomposition rate, etc. 	<ul style="list-style-type: none"> • Pre-mixing operations (ditching, mulching, covering, etc.) • Effective Microbes (EM) • Plant Growth Promoting Rhizobacteria (PGPR) • Post mixing operations (moisture content, temperature, decomposition rate, etc.) • Inspection of composting site 	Total: 800hrs Theory: 10hrs Practical: 70hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet 	Class Room/ Site Specific Field Area

	4. Perform periodic analysis during composting	<u>Practical Activity:</u> 1. Prepare on farm Compost by performing pre/post mixing tasks		<ul style="list-style-type: none"> • Computer system • Spade • Calculator • Soil augers • Gardening tool kits 	
LU3: Perform Analysis of compost (AutoCAD/ Photoshop)	The trainee will be able to: 1. Perform compost analysis (Temperature, moisture content, pH etc.) until to get the final compost 2. Perform sampling of compost according to the standard procedure for lab analysis 3. Label the packaging of compost samples 4. Transport compost sample to the lab	<ul style="list-style-type: none"> • On-farm analysis (Temperature, moisture and pH content) for compost • Standard procedures for compost sampling (Labelling, sampling method, packaging, etc.) • Material required for packing of compost sample. • SOP's for transportation of compost sample. 	Total: 45hrs Theory: 10hrs Practical: 35hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system 	Class Room/ Site Specific Field Area

		<u>Practical Activity:</u> <ol style="list-style-type: none"> 1. Prepare a record sheet for on-farm compost analysis. 2. Label the compost sample with appropriate information. 		<ul style="list-style-type: none"> • Spade • Calculator • Soil augers • Gardening tool kits 	
LU4: Apply the compost using appropriate method	The trainee will be able to: <ol style="list-style-type: none"> 1. Calculate the compost quantity, to be added in soil based on Lab analysis reports (compost and soil) 2. Perform compost application in soil by using appropriate method. 	<ul style="list-style-type: none"> • Interpretation of lab analysis report • Quantification of the compost (measurement of compost rate) • Different methods for compost application into the soil 	Total: 80hrs Theory: 10hrs Practical: 70hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags Non Consumable	Class Room/ Site Specific Field Area

		<u>Practical Activity:</u> 1. Quantify and apply compost in the given area on the basis of Lab analysis report.		<ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Spade • Calculator • Soil augers • Gardening tool kits 	
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Module 5: Perform Vermicomposting

Objective of the module: After completing this module, learner will be able to perform vermicomposting which includes collection of waste, application of worms in material and application of Vermicompost in soil.

Duration: 260 hrs.

Theory: 50 hrs.

Practical: 210 hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Perform collection of farm waste	The trainee will be able to: <ol style="list-style-type: none"> 1. Visit the farm to make a list of available and suitable waste 2. Perform collection and storage of farm waste appropriately 	<ul style="list-style-type: none"> • Introduction to Vermicomposting • Explain Waste Materials • Collection of waste materials • Standard procedures for the storage of collected material 	Total: 31hrs Theory: 10hrs Practical: 21hrs	<div>Consumable</div> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags <div>Non Consumable</div>	Class Room/ Site Specific Field Area

		<u>Practical Activity:</u> <ol style="list-style-type: none"> 1. Visit the field to collect on-farm waste materials and perform storage by using appropriate method. 		<ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Spade • Calculator • Soil augers • Gardening tool kits 	
LU2: Perform Pre-Application tasks	The trainee will be able to: <ol style="list-style-type: none"> 1. Select suitable site for Vermicomposting 2. Select tools according to the requirement 3. Perform Pre-Application tasks (ditching, ridging, mulching, covering, etc.) 	<ul style="list-style-type: none"> • Site selection criteria for vermicomposting • Basic tools required for the preparation of Vermicompost. • Vermicompost preparation • Pre-Application tasks (ditching, ridging, mulching, covering, etc.) 	Total: 31hrs Theory: 10hrs Practical: 21hrs	<div>Consumable</div> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags <div>Non Consumable</div> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Spade • Calculator 	Class Room/ Site Specific Field Area
		<u>Practical Activity:</u> <ol style="list-style-type: none"> 1. Select a site for vermicomposting and Perform Pre-Application tasks. 			

				<ul style="list-style-type: none"> • Soil augers • Gardening tool kits 	
LU3: Perform application of Worms in material	The trainee will be able to: <ol style="list-style-type: none"> 1. Fulfill the requirements for Worms application by checking: <ul style="list-style-type: none"> ○ Physical state of material (moisture content, temperature, rate of decomposition, etc.) ○ Growth stage of Worm ○ Incubation/Time period ○ Environmental condition, etc. 2. Perform application of Worms 	<ul style="list-style-type: none"> • Biology of Earthworms <ul style="list-style-type: none"> ○ Species ○ Anatomy ○ Lifecycle/Life history • Physical state of materials for vermicomposting (moisture content, temperature, rate of decomposition, etc.) • Difference between Vermiculture and Vermicomposting • Conditions required for rearing of commercially available earthworm species • Procedure to apply Worms in host material (Crop residues, Weed biomass, Vegetable waste, Leaf litter, Hotel refuse, Waste from agro-industries, etc.) 	Total: 70hrs Theory: 10hrs Practical: 60hrs	<div>Consumable</div> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags <div>Non Consumable</div> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Spade • Calculator • Soil augers • Gardening tool kits 	Class Room/ Site Specific Field Area

		<u>Practical Activity:</u> 1. Apply Worms to the selected host material.			
LU4: Perform post management and care of Compost	The trainee will be able to: 1. Perform on-farm analysis (Temperature, moisture content, pH etc.) 2. Perform sampling of compost for lab analysis 3. Perform packing and transportation of compost sample to the lab	<ul style="list-style-type: none"> Effects of physical conditions (temperature, moisture content and pH) on Vermicompost. Maintaining on-farm environment for vermicomposting Methods for Vermicompost sampling Tools and equipment for sampling Labelling of sample according to the requirements and specifications for lab analysis. Explain packaging and transport protocol. Maintain records. 	Total: 64hrs Theory: 10hrs Practical: 54hrs	Consumable <ul style="list-style-type: none"> Notebooks Pencils Erasers Sharpener PPE's Polyethene bags Non Consumable <ul style="list-style-type: none"> White board Multimedia Internet Computer system Spade Calculator Soil augers Gardening tool kits 	Class Room/ Site Specific Field Area

		<u>Practical Activity:</u> 1. Perform sampling and packaging of Vermicompost material for lab analysis			
LU5: Monitor the procedure of sample preparation	The trainee will be able to: 1. Calculate the Vermicompost quantity, to be added in soil based on lab analysis reports (compost and soil) 2. Perform Vermicompost application in soil by using appropriate method.	<ul style="list-style-type: none"> • Environmental risks and benefits of worm application. • Mixing procedure of Vermicompost • Determination of Vermicompost quantity based on soil report • Application methods for vermicomposting • Explain the procedure to add Vermicompost 	Total: 64hrs Theory: 10hrs Practical: 54hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet 	Class Room/ Site Specific Field Area

		<u>Practical Activity:</u> <ol style="list-style-type: none"> 1. Apply Vermicompost to the assigned area by using available resources. 		<ul style="list-style-type: none"> • Computer system • Spade • Calculator • Soil augers • Gardening tool kits 	
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Module 6: Perform First Aid for Pesticide Poisoning

Objective of the module: After completing this module, learner will be able to perform First Aid for Pesticide Poisoning. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Duration: 30 hrs.

Theory: 10 hrs.

Practical: 20 hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Identify symptoms of Pesticide poisoning	The trainee will be able to: <ol style="list-style-type: none"> 1. Identify Poison type and dose intake 2. Find out the possible pathway of pesticide poisoning (by mouth, nose, skin, eyes, ears, etc.) 	<ul style="list-style-type: none"> • Define pesticide poisoning. • Pathways of pesticide poisoning 	Total: 15hrs Theory: 5hrs Practical: 10hrs	<div>Consumable</div> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners <div>Non Consumable</div> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • First aid box • Ice-box • Fire buckets 	Class Room/ Site Specific Field Area

LU2: Perform First Aid accordingly	The trainee will be able to: <ol style="list-style-type: none"> 1. Move the effected person to the fresh air 2. Hold the effected person in comfortable posture 3. Perform Insufflation accordingly 4. Take measures to vomit, if required 5. Seek medical help as soon as possible 	<ul style="list-style-type: none"> • Procedure to provide first aid according to the situation. • Treatments required for affected person • Personal safety measure. 	Total: 15hrs Theory: 5hrs Practical: 10hrs	<div>Consumable</div> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners <div>Non Consumable</div> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • First aid box • Ice-box • Fire buckets 	Class Room/ Site Specific Field Area
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Module 7: Apply Biological Control Agents BCA's

Objective of the module: The aim of this module to get knowledge, skills and understanding to Apply Biological Control Agents BCA's.

Duration: 280 hrs.

Theory: 70 hrs.

Practical: 210 hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Select Biological Control Agents	<p>The trainee will be able to:</p> <ol style="list-style-type: none"> 1. Identify Biological Control Agents (BCA) 2. Mode of Action for Biological Control Agents (BCA) (<i>Trichoderma spp.</i>, <i>Trichogramma spp.</i> and <i>Bacillus thuringiensis</i>) 3. Analyse the types of hazards 4. Perform selection of Bio-control agent 5. Perform rearing of Bio-control agents 6. Maintain natural equilibrium below the economic threshold level (ETL) 	<ul style="list-style-type: none"> • Biological Control Agent (BCA) (predators, parasitoids, pathogens, and competitors.) • Biology of insects • Species • Anatomy • Lifecycle/Life history • Maintain records • Differentiate between predators and parasites • Basic concepts in pest management. • Basic principles and theories of ETL. • Criteria for ETL Calculation • Role of ETL in crop protection 	<p>Total: 90hrs Theory: 40hrs Practical: 50hrs</p>	<p>Consumable</p> <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags • Polyethene sheets • Scotch tape <p>Non Consumable</p> <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Spade • Calculator 	Class Room/ Site Specific Field Area

		<ul style="list-style-type: none"> • Environmental hazards associate with bio-control agents. • Rearing procedures according to the type of BCA's. • Materials, tools, equipment and facilities according to the requirement 		<ul style="list-style-type: none"> • Soil augers • Gardening tool kits • Microscope • measuring tape • Measuring scale 	
		<u>Practical Activity:</u> 1. Perform rearing/culturing of given BCA.			
LU2. Implement Biological Control Agents	The trainee will be able to: <ol style="list-style-type: none"> 1. Perform application of Bio-control Agents 2. Check performance of Biological Control Agents 3. Calculate population of BCA's to keep the pest below EIL 4. Perform the assessment of the effects of BCA application. 5. Prepare Datasheet/Reports 	<ul style="list-style-type: none"> • Criteria to calculate EIL. • Maintaining records of pests and BCA's. • Methods used for application of BCA's. • Bio-control measures, natural enemies, and other beneficial organisms. • Suitable BCA's to reduce pest density and level of severity/infestation 	Total: 130hrs Theory: 50hrs Practical: 80hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags • Polyethene sheets • Scotch tape Non Consumable <ul style="list-style-type: none"> • White board 	Class Room/ Site Specific Field Area

		<ul style="list-style-type: none"> • Evaluation of the effectiveness of BCA's (Datasheet/Reports). 		<ul style="list-style-type: none"> • Multimedia • Internet • Computer system • Spade • Calculator • Soil augers • Gardening tool kits • Microscope • measuring tape • Measuring scale 	
		<p><u>Practical Activity:</u></p> <p>1. Apply BCA and prepare a datasheet/report on the basis of their efficacy.</p>			

Module 8: Perform Urban Pest Management

Objective of the module: The aim of this module to get knowledge, skills and understanding to Perform Urban Pest Management.

Duration: 280 hrs.

Theory: 70 hrs.

Practical: 210 hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Conduct preliminary inspection of customer's premises	The trainee will be able to: 1. Conduct the site survey to identify the urban pest problem. 2. Prepare an inspection report	<ul style="list-style-type: none"> Describe Urban Pest (Mosquito, termite, lizard, rodents, bed bugs, cockroaches, etc.) Biology of Urban Pest <ul style="list-style-type: none"> Species Anatomy Lifecycle/Life history Mode of damage Site inspection (GAP Analysis) Required resources for Urban pests management 	Total: 90hrs Theory: 20hrs Practical: 70hrs	Consumable <ul style="list-style-type: none"> Notebooks Pencils Erasers Sharpeners PPE's Polyethene bags Polyethene sheets Scotch tape 	Class Room/ Site Specific Field Area
		Practical Activity: 1. Inspect the affected area to identify gaps/spots which is responsible for pest		Non Consumable <ul style="list-style-type: none"> White board Multimedia Internet Computer system Spade Calculator Soil augers 	

		development/multiplication.		<ul style="list-style-type: none"> Gardening tool kits Microscope measuring tape Measuring scale 	
LU2. Prepare the quotation for the customer	The trainee will be able to: <ol style="list-style-type: none"> Estimate Time, Cost, Supplies & required equipment Compile the information to make the quotation. 	<ul style="list-style-type: none"> Define the purpose of Quotation preparation Quotation preparation (Tools, equipment, time, area, chemicals, service charges, etc.) 	Total: 90hrs Theory: 20hrs Practical: 70hrs	Consumable <ul style="list-style-type: none"> Notebooks Pencils Erasers Sharpeners PPE's Polyethene bags Polyethene sheets Scotch tape Non Consumable <ul style="list-style-type: none"> White board Multimedia Internet Computer system Spade Calculator Soil augers Gardening tool kits 	Class Room/ Site Specific Field Area

				<ul style="list-style-type: none"> • Microscope • measuring tape • Measuring scale 	
LU3. Perform Pesticide Application to the target site	The trainee will be able to: <ol style="list-style-type: none"> 1. Select and calibrate the tools and equipment. 2. Perform application of pesticide on the target site 3. Perform post spray care (Sign display/ tagging). 4. Prepare a report for supervisor and customer 	<ul style="list-style-type: none"> • Tools and equipment required for urban pest management. • Calibration of tools and equipment. • Post spray measures. • Tagging procedures for the targeted area • Risk Based Assessment • Importance of maintaining records • Criteria for report writing • Appropriate PPE's 	Total: 90hrs Theory: 20hrs Practical: 70hrs	Consumable <ul style="list-style-type: none"> • Notebooks • Pencils • Erasers • Sharpeners • PPE's • Polyethene bags • Polyethene sheets • Scotch tape Non Consumable <ul style="list-style-type: none"> • White board • Multimedia • Internet • Computer system • Spade • Calculator • Soil augers • Gardening tool kits • Microscope 	Class Room/ Site Specific Field Area

				<ul style="list-style-type: none"> • measuring tape • Measuring scale • Sprayer tanks • Air blast sprayers • Nozzles 	
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General assessment guidance for *Pesticide & Fertiliser Technology*

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 module, 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 Pesticide & Fertiliser Technology include:

- Work performances, for example perform basic communication, maintain personal health, hygiene and safety, perform basic computer operations, and dispose the waste materials.
- Demonstrations, for example Soil Sampling and Pesticide Pre-Application Tasks Per
- Direct questioning, where the assessor would ask the student how to perform personal safety at work place, how they can communicate work place policy and

procedures, how they can handle documents, what are the benefits of organizing store merchandising

- Paper-based tests, such as multiple choice or short answer questions on communication at work place policy and procedures, handling documents, organizing store merchandizing
- Indirect assessment is the method used where the performance could not be watched and evidence is gained indirectly.

Examples for indirect assessment of a Pesticide & Fertiliser Technology include:

- Perform Soil Sampling for Lab Test, Diagnose Plant health problems, Perform Pesticide Pre-Application Tasks and Apply Fertiliser

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 should be valid, reliable, fair and flexible:

Fairness means that there should be no advantages or disadvantages for any assessed person. For example, it should not happen that one student gets prior information about the type of work performance that will be assessed, while another candidate does not get any prior information.

Validity means that a valid assessment assesses what it claims to assess. For example, if documentation or organizing procedures of Pesticide Pre-Application Tasks are to be assessed and certificated, the assessment should involve performance criteria that are directly related to that documentation activity. An interview about the Pesticide Pre-Application Tasks would not meet the performance criteria.

Reliability means that the assessment is consistent and reproducible. For example, if the work performance of preparing documents in words has been assessed, another assessor (e.g. the future employer) should be able to see the same work performance and witness the same level of achievement.

Flexibility means that the assessor has to be flexible concerning the assessment approach. For example, if there is a power failure during the assessment, the assessor should modify the arrangements to accommodate the students' needs.

Assessment strategy for *Pesticides & Fertilisers Technology*

“Assistant Supervisor”

This curriculum consists of 08 modules:

- **Module 1:** Establish And Maintain The Occupational Health And Safety System
- **Module 2:** Perform Advance Communication
- **Module 3:** Analyse Workplace Policies And Procedures
- **Module 4:** Perform Preparation Of On-Farm Compost Using Organic/Inorganic Compounds
- **Module 5:** Perform Vermicomposting
- **Module 6:** Perform First Aid For Pesticide Poisoning
- **Module 7:** Apply Biological Control Agents (BCA's)
- **Module 8:** Perform Urban Pest Management

Sessional Assessment

The sessional assessment for all modules shall be in two parts: theoretical assessment and practical assessment. The sessional marks shall contribute to the final qualification.

Theoretical assessment for all learning modules must consist of a written paper lasting at least one hour 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 be in two parts: theoretical assessment and practical assessment. The final assessment marks shall contribute to the final qualification.

The Assessment Team

The number of assessors 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 25 students shall therefore require assessments to be carried out over a four-day period. For a group of only 10 to 15 students, assessments would be carried out over a two-day period only.

Planning for Assessment

Sessional Assessment: assessors need to plan in advance how they will conduct sessional assessments for each module. The tables on the following pages are for assessors to use to insert how many hours of theoretical and practical assessment will be conducted and what the scheduled dates are.

Final Assessment: Training providers need to decide ways to combine modules into a cohesive two-day final assessment programme for each group of five students. Training providers must agree the content for practical assessments in advance.

Complete List of Tools and Equipment

Sr no	Description	Quantity
1	Computer with internet	26
2	White board	1
3	Multimedia	1

List of Consumable Supplies

Sr no	Material	Quantity
1.	Note book	25
2.	Flip chart	25
3.	Pencil	25
4.	White sheets	25
5.	Eraser	25
6.	Sharpener	25
7.	Pen	25
8.	Chart Papers	25

9.	Board markers	1
10.	File covers	25
11.	Scotch tape	25
12.	Masks	25
13.	Gloves	25
14.	Goggles	25
15.	Fertilizer mixer	5
16.	Motors	5
17.	Measuring cylinders/containers	25
18.	Spade	25
19.	Microscopes	5
20.	Sprayer Tank	10
21.	Air Blast Sprayers	5
22.	Spraying Nozzle Sets	10
23.	Fire Buckets	1
24.	Respiratory Mask	25
25.	First Aid Box	5
26.	Calculator	25

27.	Measuring Tape	25
28.	Measuring Scale	25
29.	Ladder	1
30.	Soil Augars	12
31.	Polyethylene Sheets	100
32.	Sample collection Polyethylene bags	500
33.	Ice Box	5
34.	Magnifying glass/Lens	25
35.	Forceps	25
36.	Gardening Tool Kit	25

Credit Values

The credit value of the National Certificate Level 2 in Textile Merchandizing 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 Higher Education Commission (HEC) guidelines).

The credit values are as follows:

Competency Standard	Estimate of hours	Credit
A. Establish and maintain the occupational Health and safety system	30	3
B. Perform Advanced Communication	30	3
C. Analyse Workplace Policies and Procedures	30	3
D. Perform preparation of on-farm compost using Organic/inorganic Compounds	260	26
E. Perform Vermicomposting	260	26
F. Perform First Aid for Pesticide Poisoning	30	3
G. Apply Biological Control Agents (BCA's)	280	28
H. Perform Urban Pest Management	280	28