

Government of Pakistan

National Vocational and Technical Training Commission

Prime Minister's Hunarmand Pakistan Program

"Skills for All"



Course Contents / Lesson Plan

Course Title: IPM (Integrated pest management)

Duration: 6 Months

Revised Edition

Trainer Name	
Course Title	IPM (Integrated Pest Management)
Objectives and Expectations	<p style="text-align: center;">Employable skills and hands-on practice for IPM (Integrated Pest Management)</p> <p>This course offers a broad, cross-disciplinary learning experience for students looking to pursue careers in Integrated pest management and Pest monitoring, farm management, biological control, chemical control, cultural control, rearing of beneficial insects, agribusiness and skill development. The course is designed to span a wide range of communication in a market platform.</p> <p>In this course, students are introduced to key aspects of the design financial accounting, from research/strategy, creative brief development, and campaign development to teamwork and presentation and content creation so that they can enter the financial market as strong candidates for beginner to intermediate level design jobs.</p> <p><u>Main Expectations:</u></p> <p>In short, the course under reference should be delivered by professional instructors in such a robust hands-on manner that the trainees are comfortably able to employ their skills for earning money (through wage/self-employment) at its conclusion.</p> <p>This course thus clearly goes beyond the domain of the traditional training practices in vogue and underscores an expectation that a market-centric approach will be adopted as the main driving force while delivering it. The instructors should therefore be experienced enough to be able to identify the training needs for the possible market roles available out there. Moreover, they should also know the strengths and weaknesses of each trainee to prepare them for such market roles during/after the training.</p> <ol style="list-style-type: none"> i. Specially designed practical tasks to be performed by the trainees have been included in the Annexure-I to this document. The record of all tasks performed individually or in groups must be preserved by the management of the training Institute clearly labeling name, trade, session, etc. so that these are ready to be physically inspected/verified through monitoring visits from time to time. The weekly distribution of tasks has also been indicated in the weekly lesson plan given in this document. ii. To materialize the main expectations, a special module on <u>Job Search & Entrepreneurial Skills</u> has been included in the latter part of this course (5th & 6th month) through which, the trainees will be made aware of the Job search techniques in the local as well as international job markets (Gulf countries). Awareness around the visa process and immigration laws of the most favored labor destination countries also form a part of this module. Moreover, the trainees would also be encouraged to venture into self-employment and exposed to the main requirements in this regard. It is also expected that a sense of civic

duties/roles and responsibilities will also be inculcated in the trainees to make them responsible citizens of the country.

- iii. A module on **Work Place Ethics** has also been included to highlight the importance of good and positive behavior in the workplace in the line with the best practices elsewhere in the world. An outline of such qualities has been given in the Appendix to this document. Its importance should be conveyed in a format that is attractive and interesting for the trainees such as through PPT slides +short video documentaries. Needless to say, that if the training provider puts his heart and soul into these otherwise non-technical components, the image of the Pakistani workforce would undergo a positive transformation in the local as well as international job markets.

To maintain interest and motivation of the trainees throughout the course, modern techniques such as:

- Motivational Lectures
- Success Stories
- Case Studies

These techniques would be employed as an additional training tool wherever possible (these are explained in the subsequent section on Training Methodology).

Lastly, evaluation of the competencies acquired by the trainees will be done objectively at various stages of the training and a proper record of the same will be maintained. Suffice to say that for such evaluations, practical tasks would be designed by the training providers to gauge the problem-solving abilities of the trainees.

(i) **Motivational Lectures**

The proposed methodology for the training under reference employs motivation as a tool. Hence besides the purely technical content, a trainer is required to include elements of motivation in his/her lecture. To inspire the trainees to utilize the training opportunity to the full and strive towards professional excellence. Motivational lectures may also include general topics such as the importance of moral values and civic role & responsibilities as a Pakistani. A motivational lecture should be delivered with enough zeal to produce a deep impact on the trainees. It may comprise of the following:

- Clear Purpose to convey the message to trainees effectively.
- Personal Story to quote as an example to follow.
- Trainees Fit so that the situation is actionable by trainees and not represent a just idealism.
- Ending Points to persuade the trainees on changing themselves.

A good motivational lecture should help drive creativity, curiosity, and spark the desire needed for trainees to want to learn more.

The impact of a successful motivational strategy is amongst others commonly visible in increased class participation ratios. It increases the trainees' willingness to be engaged on the practical tasks for a longer time without boredom and loss of interest because they can see in their mind's eye where their hard work would take them in short (1-3 years); medium (3 -10 years) and long term (more than 10 years).

As this tool is expected that the training providers would make arrangements for regular well planned motivational lectures as part of a coordinated strategy

interspersed throughout the training period as suggested in the weekly lesson plans in this document.

Course-related motivational lectures online link is available in **Annexure-II**.

(ii) Success Stories

Another effective way of motivating the trainees is using Success Stories. Its inclusion in the weekly lesson plan at regular intervals has been recommended till the end of the training.

A success story may be disseminated orally, through a presentation, or using a video/documentary of someone that has risen to fortune, acclaim, or brilliant achievement. A success story shows how a person achieved his goal through hard work, dedication, and devotion. An inspiring success story contains compelling and significant facts articulated clearly and easily comprehensible words. Moreover, it is helpful if it is assumed that the reader/listener knows nothing of what is being revealed. The optimum impact is created when the story is revealed in the form of: -

- Directly in person (At least 2-3 cases must be arranged by the training institute)
- Through an audio/ videotaped message (2-3 high-quality videos must be arranged by the training institute)

It is expected that the training provider would collect relevant high-quality success stories for inclusion in the training as suggested in the weekly lesson plan given in this document.

Suggestive structure and sequence of a sample success story and its various shapes can be seen in **Annexure III**.

(iii) Case Studies

Where a situation allows, case studies can also be presented to the trainees to widen their understanding of the real-life specific problem/situation and to explore the solutions.

In simple terms, the case study method of teaching uses a real-life case example/a typical case to demonstrate a phenomenon in action and explain theoretical as well as practical aspects of the knowledge related to the same. It is an effective way to help the trainees comprehend in depth both the theoretical and practical aspects of the complex phenomenon in depth with ease. Case teaching can also stimulate the trainees to participate in discussions and thereby boost their confidence. It also makes the classroom atmosphere interesting thus maintaining the trainee interest in training till the end of the course.

Depending on suitability to the trade, the weekly lesson plan in this document may suggest case studies be presented to the trainees. The trainer may adopt a PowerPoint presentation or video format for such case studies whichever is deemed suitable but only those cases must be selected that are relevant and of a learning value.

The Trainees should be required and supervised to carefully analyze the cases.

For this purpose, they must be encouraged to inquire and collect specific information/data, actively participate in the discussions, and intended solutions to the problem/situation.

Case studies can be implemented in the following ways: -

	<ol style="list-style-type: none"> i. A good quality trade-specific documentary (At least 2-3 documentaries must be arranged by the training institute) ii. Health & Safety case studies (2 cases regarding safety and industrial accidents must be arranged by the training institute) iii. Field visits (At least one visit to a trade-specific major industry/site must be arranged by the training institute)
Entry-level of trainees	Intermediate
Learning Outcomes of the course	<ul style="list-style-type: none"> • Pest survey, surveillance and methods of sampling • Ecological management of pests • Pest management by modifying insect development and behavior • Pest management through innovative approaches • Pros and cons of different IPM techniques and their integration • Successful IPM cases
Course Execution Plan	<p>The total duration of the course: 6 months (26 Weeks) Class hours: 4 hours per day Theory: 20% Practical: 80% Weekly hours: 20 hours per week Total contact hours: 520hours</p>
Companies offering jobs in the respective trade	<ol style="list-style-type: none"> 1. C-Shine 2. UPM(Urban Pest Management) 3. Nayyab pest Management 4. Plant Protection Department 5. Friends Private Limited 6. PHA
Job Opportunities	<p>Opportunities in this field include areas as diverse as science, engineering, finance, marketing, and exporting. Careers in these areas have expanded as the production and processing of food and fiber have become more specialized and technological.:</p> <ul style="list-style-type: none"> • Vegetable IPM technician • Grower . • IPM practice supervisor. • Agronomy Sales Manager. • Biocontrol lab helper • Farming and production • Management and marketing of Agricultural commodities • Farming techniques • Marketing and financing of fiber and food products • Agribusiness management
No of Students	25

Instructional Resources

<https://www.youtube.com/watch?v=9MRNE4pTog8>

introduction to IPM

<https://www.youtube.com/watch?v=87VtpvnHSJ4>

Principles of Integrated pest management

https://www.youtube.com/watch?v=Yocja_N5s1I

Agriculture Revolution

<https://www.youtube.com/watch?v=jyNcf9y9jc>

Insect control method

<https://www.youtube.com/watch?v=IDzheDVA2QM>

monitoring of plants

<https://www.youtube.com/watch?v=UZIPGOizfNg>

Basics of Field Scouting.

<https://www.youtube.com/watch?v=TQEaA7IjvIQ>

what are biopesticides?

https://www.youtube.com/watch?v=TenRNA_usxA

how to spray in fields?

<https://www.youtube.com/watch?v=2xaEmC52Yjs>

All you need to know about IPM.

MODULES

Scheduled Week	Module Title	Learning Units	Remarks
Week 1	Introduction to IPM ➤ Motivational Lecture <i>(For further detail please see Page No: 4 & 5)</i>	<ul style="list-style-type: none"> • Motivational Lecture • Course Introduction • Success stories • Job market • Course Applications • Institute/work ethics 	Home Assignment <ul style="list-style-type: none"> • Task 1 • Task 2 • Task 3 <i><u>Details may be seen at Annexure-I</u></i>
Week 2	Introduction to IPM ➤ Success Story <i>(For further detail please see Page No: 4 & 5)</i>	<ul style="list-style-type: none"> • Introduction to IPM. • Understand hierarchy system in agriculture • History of IPM • Definition and identification of insect: • Understand the concept how insect becomes pest. • Different forms of insect pest; • Orders of insect as pest 	<ul style="list-style-type: none"> • Task 4 • Task 5 • Task 6 • Task 7 <i><u>Details may be seen at Annexure-I</u></i>
Week 3	Introduction to IPM ➤ Motivational Lecture <i>(For further detail please see Page No: 4 & 5)</i>	<ul style="list-style-type: none"> • Principles of Integrated Pest Management. • Principles of crop husbandry (Entomology, Nematology, Weed science and Plant Pathology) • Approaches to functional and fundamental underpinning IPM (ecology, principles of insect control, ecological genetics). 	<ul style="list-style-type: none"> • Task 8 • Task 9 • Task 10 <i><u>Details may be seen at Annexure-I</u></i>
Week 4	Introduction to IPM ➤ Success Story <i>(For further detail please see Page No: 4 & 5)</i>	<ul style="list-style-type: none"> • Principles of ecology in IPM. • Principles of ecological genetics in IPM. • Principles of socioeconomics in IPM • Population growth and phenology 	<ul style="list-style-type: none"> • Task 11 • Task 12 • Task 13 • 1st Monthly test <i><u>Details may be seen at Annexure-I</u></i>

Week 5	Introduction to IPM ➤ Motivational Lecture <i>(For further</i>	<ul style="list-style-type: none">• Population system of insect pest; number of emigrants; number of invaders	<ul style="list-style-type: none">• Task 14• Task 15• Task 16
---------------	--	---	--

	<i>detail, please see Page No: 4 & 5)</i>	<ul style="list-style-type: none"> • Factors affecting insect mortality and natality; birth rate; death rate and development rate. • Visit to pesticide industry and analyze insets rearing. 	<p>• Task 17</p> <p><u><i>Details may be seen at Annexure-I</i></u></p>
Week 6	<p>Introduction to IPM</p> <p>➤ Success Story (For further detail please see Page No: 4 & 5)</p>	<ul style="list-style-type: none"> • Population genetics, population frequencies (migration and mutation). • Understand resistance. Differentiate between vertical and horizontal resistance. 	<p>• Task 18 • Task 19 • Task 20</p> <p><u><i>Details may be seen at Annexure-I</i></u></p>
Week 7	<p>Principles of insect control</p> <p>➤ Motivational Lecture</p> <p>(For further detail please see Page No: 4 & 5)</p>	<ul style="list-style-type: none"> • Pioneering ideas in insect control. • The evolutionary theories of insect control. • Types of pest control; pest examination, pest removal and pest prevention. 	<p>• Task 21 • Task 22 • Task 23</p> <p><u><i>Details may be seen at Annexure-I</i></u></p>
Week 8	<p>Principles of insect control</p> <p>➤ Success Story (For further detail please see Page No: 4 & 5)</p>	<ul style="list-style-type: none"> • Classification of insect control measures (chemical, physical and biological). • Selection of control measures (check pest type); • Biological control (introduction or enhancement of natural enemy); • Cultural control (timing, harvesting, agricultural practices) • Resistance (polygenic and monogenic) • Genetic control (sterile mating) • Insecticidal control (use selective insecticide). 	<p>• Task 24 • Task 25 • Task 26 • Task 27 • Task 28 • 2nd monthly test</p> <p><u><i>Details may be seen at Annexure-I</i></u></p>
Week 9	<p>Principles of insect control</p> <p>➤ Motivational Lecture (For further detail, please see Page No: 4 & 5)</p>	<ul style="list-style-type: none"> • Population interaction of insect pest; interactions may be interspecific or intraspecific. • Project planning on mutualism, commercialism and parasitism. • Industrial visit to check <i>Chrysoperla carnea</i> rearing. 	<p>• Task 29 • Task 30 • Task 31</p> <p><u><i>Details may be seen at Annexure-I</i></u></p>

Week 10	Pest management tactics. ➤ Success Story (For further detail please see Page No: 4 & 5)	<ul style="list-style-type: none"> • Concepts and definition of regulatory control. • Plant quarantine • Government agency involved in plant quarantine. • Plant quarantine service; foreign quarantine • Export certification procedures. 	<ul style="list-style-type: none"> • Task 32 <p><i><u>Details may be seen at Annexure-I</u></i></p>
Week 11	Pest management tactics ➤ Motivational Lecture (For further detail please see Page No: 4 & 5)	<ul style="list-style-type: none"> • Cultural control <ol style="list-style-type: none"> 1. Sanitation 2. Tillage 3. Crop rotation 4. Cropping systems for rice, wheat, sugar, mango and okra. 	<ul style="list-style-type: none"> • Task 33 <p><i><u>Details may be seen at Annexure-I</u></i></p>
Week 12	Pest management tactics ➤ Success Story (For further detail please see Page No: 4 & 5)	<ul style="list-style-type: none"> • Chemical control <ol style="list-style-type: none"> 1. Classes of insecticide 2. Mode of action of insecticides 3. Pheromones 4. IGRs (insect growthregulator) 5. Semiochemical (allomones, kairomones and synomone) 	<ul style="list-style-type: none"> • Task 34 <p><i><u>Details may be seen at Annexure-I</u></i></p>
	Build your CV	Download professional CV template from any good site (https://www.coolfreecv.com or relevant) <ul style="list-style-type: none"> • Add Personal Information • Add Educational details • Add Experience/Portfolio • Add contact details/profile links 	
Week 13	Mid-Term Assignment/Exam		
Week 14	Pest management tactics ➤ Motivational Lecture (For further detail please see Page No: 4 & 5)	<ul style="list-style-type: none"> • Biological control. <ol style="list-style-type: none"> 1. Ecological considerations 2. Biological control of insects 3. Biological control of plant diseases 4. Biological control of weeds. 	<ul style="list-style-type: none"> • Task 35 • Task 36 <p><i><u>Details may be seen at Annexure-I</u></i></p>

Week 15	Pest management tactics ➤ Success Story <i>(For further detail</i>	<ul style="list-style-type: none">• Weed management.<ol style="list-style-type: none">1. Crop rotation2. Mulching3. Primary tillage	• Task 37
----------------	---	---	------------------

	<i>please see Page No: 4 & 5)</i>	<ol style="list-style-type: none"> 4. Crop residue management. 5. Deep ploughing, alternation between ploughing and reduced tillage. 	<u><i>Details may be seen at Annexure-I</i></u>
	Create an account profile on Fiverr (at least two gigs) and Upwork	<p>Create an account by following these steps:</p> <p>Step 1: Personal Info Step 2: Professional Info Step 3: Linked Accounts Step 4: Account Security</p>	
Week 16	<p>Pest management tactics Success Story</p> <p><i>(For further detail please see Page No: 4 & 5)</i></p>	<ul style="list-style-type: none"> • Genetic manipulation of crop plant resistance. <ol style="list-style-type: none"> 1. Sources of genetic variation. 2. Overview of plant resistance to insect. 3. Inheritance an expression of plant resistance. 4. Development of resistance genes. 	<ul style="list-style-type: none"> • Task 38 • Task 39 • 3rd monthly test <p><u><i>Details may be seen at Annexure-I</i></u></p>
Week 17	<p>Pest management tactics</p> <p>➤ Motivational Lecture</p> <p><i>(For further detail please see Page No: 4 & 5)</i></p>	<ul style="list-style-type: none"> • Genetic manipulation of pest population. <ol style="list-style-type: none"> 1. SIT technique 2. Delayed sterility 3. Genetic displacement.: 	<ul style="list-style-type: none"> • Task 40 <p><u><i>Details maybe seen at Annexure-I</i></u></p>
Week 18	<p>Pest management tactics</p> <p>➤ Success Story</p> <p><i>(For further detail please see Page No: 4 & 5)</i></p>	<ul style="list-style-type: none"> • Ecological considerations • Pesticide classification • Pesticide resistance • Chemical modes of action. 	<ul style="list-style-type: none"> • Task 41 <p><u><i>Details may be seen at Annexure-I</i></u></p>
Week 19	<p>Biotechnology and new integrated pest management</p> <p>➤ Motivational Lecture</p>	<ul style="list-style-type: none"> • Biotechnology; <ol style="list-style-type: none"> 1. Increase resistance to Insect-pest. 2. Diagnosis of their natural enemies 3. Bioreactors 	<ul style="list-style-type: none"> • Task 42 • Task 43 • Task 44

	(For further detail please see Page No: 4 & 5)	<ol style="list-style-type: none"> 4. Central dogma DNA replication, translation and transcription. 5. Insect sterile technique 	<u>Details may be seen at Annexure-I</u>
Week 20	Precision in IPM ➤ Success Story (For further detail please see Page No: 4 & 5)	<ul style="list-style-type: none"> • Utilizing precision agriculture as an IPM tool. <ol style="list-style-type: none"> 1. Global positioning system 2. Location of prescribed fertilizer and pesticide. 3. Precision in pest monitoring through remote sensors 	<ul style="list-style-type: none"> • Task 45 • 4th monthly test <u>Details may be seen at Annexure-I</u>

<p>Week 21</p>	<p>Employable Project/Assignment (6 weeks i.e., 21-26) in addition of regular classes.</p> <p style="text-align: center;">OR</p> <p>On job training (2 weeks)</p>	<ul style="list-style-type: none"> ● Guidelines to the Trainees for selection of student's employable project like final year project (FYP) ● Assign Independent project to each Trainee ● A project based on trainee's aptitude and acquired skills. ● Designed by keeping in view the emerging trends in the local market as well as across the globe. ● The project idea may be based on Entrepreneur. ● Leading to the successful employment. ● The duration of the project will be 6 weeks ● Ideas may be generated via different sites such as: https://1000projects.org/ https://nevonprojects.com/ https://www.freestudentprojects.com/ https://technofizi.net/best-computer-science-and-engineering-case-project-topics-ideas-for-students/ ● Final viva/assessment will be conducted on project assignments. ● At the end of session, the project will be presented in skills competition ● The skill competition will be conducted on zonal, regional and National level. ● The project will be presented in front of Industrialists for commercialization ● The best business idea will be placed in NAVTTC business incubation center for commercialization. <p style="text-align: center;">----- OR</p>	<ul style="list-style-type: none"> ● Task 46 ● Task 47 ● Task 48 <p style="text-align: center;"><u><i>Details may be seen at Annexure-I</i></u></p>
-----------------------	--	--	---

		<p>On job training for 2 weeks:</p> <ul style="list-style-type: none"> • Aims to provide 2 weeks industrial training to the Trainees as part of overall training program • Ideal for the manufacturing trades • As an alternate to the projects that involve expensive equipment • Focuses on increasing Trainee's motivation, productivity, efficiency and quick learning approach. 	
Week 22	<p>Implementation of IPM</p> <p>➤ Success Story</p> <p>(For further detail please see Page No: 4 & 5)</p>	<ul style="list-style-type: none"> • Identify Pest(s) • Determine Pest, Beneficial and Crop Dynamics • Plan Preventative Strategies • Monitor Pests • Decide on Need to Control • Select Optimal Pest Control Tactics • Implement • Evaluate 	<ul style="list-style-type: none"> • Task 49 • Task 50 <p><u>Details may be seen at Annexure-I</u></p>
	<p>How to search and apply for jobs in at least two labor marketplace countries (KSA, UAE, etc.)</p>	<ul style="list-style-type: none"> • Browse the following website and create an account on each website <ul style="list-style-type: none"> ▪ Bayt.com – The Middle East Leading Job Site ▪ Monster Gulf – The International Job Portal ▪ Gulf Talent – Jobs in Dubai and the Middle East • Find the handy 'search' option at the top of your homepage to search for the jobs that best suit your skills. • Select the job type from the first 'Job Type' drop-down menu, next, select the location from the second drop-down menu. • Enter any keywords you want to use to find suitable job vacancies. • On the results page you can search for part-time jobs only, full-time jobs only, employers only, or agencies only. Tick the boxes as 	

		<p>appropriate to your search.</p> <ul style="list-style-type: none"> • Search for jobs by: <ul style="list-style-type: none"> ▪ Company ▪ Category ▪ Location ▪ All jobs ▪ Agency • Industry 	
Week 23	How to search and apply for jobs in at least two labor marketplace countries (KSA, UAE, etc.)	<ul style="list-style-type: none"> • Browse the following website and create an account on each website <ul style="list-style-type: none"> ▪ Bayt.com – The Middle East Leading Job Site ▪ Monster Gulf – The International Job Portal ▪ Gulf Talent – Jobs in Dubai and the MiddleEast • Find the handy ‘search’ option at the top of your homepage to search for the jobs that best suit your skills. • Select the job type from the first ‘Job Type’ drop-down menu, next, select the location from thesecond drop-down menu. • Enter any keywords you want touse to find suitable job vacancies. • On the results page you can search for part-time jobs only, 	<ul style="list-style-type: none"> • Task 51 • Task 52 • Task 53 <p><i><u>Details may be seen at Annexure-I</u></i></p>

		<p>full-time jobs only, employers only, or agencies only. Tick the boxes as appropriate to your search.</p> <ul style="list-style-type: none"> • Search for jobs by: <ul style="list-style-type: none"> ▪ Company ▪ Category ▪ Location ▪ All jobs ▪ Agency • Industry 	
	<p>Economics of pest management</p> <p>Motivational Lecture <i>(For further detail please see Page No: 4 & 5)</i></p>	<ul style="list-style-type: none"> • Damage boundary • Economic threshold level (ETL) • Economic injury level (EIL) • ETL levels of different insect pest. 	

<p>Week 24</p>	<p>Pest scouting and monitoring</p> <p>➤ Success Story (For further detail please see Page No: 4 & 5)</p>	<ul style="list-style-type: none"> • Crop survey • Scouting methods • Scouting methods in rice, wheat, sugar, mango and cotton. • Difference between scouting and monitoring. • Understand monitoring 	<ul style="list-style-type: none"> • Task 54 • Task 55 • Task 56 <p><i><u>Details may be seen at Annexure-I</u></i></p>
<p>Week 25</p>	<p>IPM Models Final Assessment in project</p> <p>➤ Motivational Lecture</p> <p>(For further detail please see Page No: 4 & 5)</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Proper identification of damage and responsible "pest" . <input type="checkbox"/> Learn pest and host life cycle and biology. <input type="checkbox"/> Monitor or sample environment for pest population. <input type="checkbox"/> Establish action threshold (economic, health or aesthetic) . <input type="checkbox"/> Choose appropriate combination of management tactics. <input type="checkbox"/> Evaluate results. <input type="checkbox"/> Remote sensing software <input type="checkbox"/> Global positioning system 	<ul style="list-style-type: none"> • Task 57 <p><i><u>Details may be seen at Annexure-I</u></i></p>
<p>Week 26</p>	<p>Final exams</p>		

Annexure-I**Tasks for Certificate in IPM**

Task No.	Task	Description	Week
1.	Search out three motivational lectures on IPM	Search any three motivational lectures on “Integrated Pest Management” (IPM) lectures and its application in Pakistan	Week 1
2.	Find the career path	Prepare a career path related to your course and also highlight the emerging trends in comparison of local as well as at international level	
3.	Generate employing ability	Generate a report on Institute work ethics and professionalism related to your course	
4.	Knowledge on introductory IPM.	<ul style="list-style-type: none"> • Basic knowledge on IPM • Preparation of IPM plan layout • IPM implementation 	Week 2
5.	Identify insect	<ul style="list-style-type: none"> • Prepare a flow sheet on insect classification 	
6.	Identify Pests	<ul style="list-style-type: none"> • Prepare a flow sheet on pest classification 	
7.	Study of insect/pest order	<ul style="list-style-type: none"> • Draw a pictorial sheet on insect/pest order on the basis of their hierarchy level 	
8.	Identify basic principles of IPM	<ul style="list-style-type: none"> • Understand the basics of IPM 	Week 3
9.	Evaluate the basics of crop husbandry	<ul style="list-style-type: none"> • Knowledge on basics of Plant pathogens and weed plants 	
10.	Study fundamentals of IPM	<ul style="list-style-type: none"> • Knowledge on insect management practices • Establish monitoring guide line for their control • Knowledge on action threshold for insects 	
11.	Knowledge on basic fundamentals of pest ecology	<ul style="list-style-type: none"> • Identify the basic elements of IPM • Importance of pest genetics and pest ecology 	Week 4
12.	Study pest phenology	<ul style="list-style-type: none"> • Knowledge on pest biological phenomena • Pest growth and their reproduction 	
13.	Knowledge on socio-economic components of IPM	<ul style="list-style-type: none"> • Understand the technology of IPM • Study the technical dimensions of IPM 	
14.	Knowledge on life history of insects/pests	<ul style="list-style-type: none"> • Understand the population dynamics of insect/pest 	

		<ul style="list-style-type: none"> • Natural invaders of insect/pest 	Week 5
15.	Study the habitat of insects/pests	<ul style="list-style-type: none"> • Study environmental factors effecting the insect/pest development rate • Effect of habitat change on insect/pest 	
16.	Study the concept of insect rearing	<ul style="list-style-type: none"> • Knowledge on insect rearing methods • Study of the most suitable rearing techniques 	
17.	Make a visit to pesticide industry	<ul style="list-style-type: none"> • Visit nearest pesticide industries • Observe the different classes of insecticide and their mode of action 	Week 6
18.	Understand the population frequencies	<ul style="list-style-type: none"> • Knowledge on mutant pest/insect populations • Study of migrated pest/insect populations 	
19.	Study resistance mechanism	<ul style="list-style-type: none"> • Understand the basic resistance mechanisms • Role of resistance mechanisms 	
20.	Knowledge on different resistance types	<ul style="list-style-type: none"> • Understand the specific resistance • Study of non-specific resistance 	
21.	Study of basic insect control strategies	<ul style="list-style-type: none"> • Understand insect active time • Design traps according to its activity • Collect and identify the insect 	Week 7
22.	Compare ancient and modern theories on IPM	<ul style="list-style-type: none"> • Understand different evolutionary theories • Make a comparison of theories • Devise the best one 	
23.	Knowledge on pest control strategies	<ul style="list-style-type: none"> • Consider yourself as farmer • Visit to field • Check the immigrants and emigrants on crops daily 	
24.	Perform control measures in field	<ul style="list-style-type: none"> • Consider yourself as farmer • Check the nature of insect • Check the nature of crop • Find the link between insect and crop • Select the suitable control measure 	Week 8
25.	How cultural control can manage insect/pest	<ul style="list-style-type: none"> • Understand the concept of cultural control • Find modifications in cultural control • Use suitable trap crop or mulch 	
26.	Devise the natural control as the best one	<ul style="list-style-type: none"> • Identify the insect pest and predator • Introduce the predator its augmentation and conservation 	
27.	Find diversity amongst insect resistance and genetic control	<ul style="list-style-type: none"> • Visit to a field • Collect some insects • Analyze them 	

28.	Make a pathway showing insecticidal control	<ul style="list-style-type: none"> • Create a flow chart • Classify the insecticide • Estimate their mode of action • Assess the best one 	
29.	Devise the ecological interaction of insect/pest	<ul style="list-style-type: none"> • Make a field visit • Observe different vegetable insects • Find out their interactions • Assess their relationship 	Week 9
30.	Create a flow chart on population interaction	<ul style="list-style-type: none"> • Understand the intra- and inter-specific interactions • Select any interaction • Show host pest life cycle 	
31.	Perform rearing of any biocontrol agent	<ul style="list-style-type: none"> <input type="checkbox"/> Visit to lab <input type="checkbox"/> Observe different rearing chambers <input type="checkbox"/> Evaluate their instars <input type="checkbox"/> Find the difference between them 	
32.	Name any top three plant quarantine agencies	<ul style="list-style-type: none"> • Make a visit of plant quarantine department • Check the legislation of department • Involvement with Govt. officials 	Week 10
33.	Study of cultural control	<ul style="list-style-type: none"> • Understand the mechanisms of cultural control • Knowledge of cultural control for various crops 	Week 11
34.	Knowledge on chemical control	<ul style="list-style-type: none"> • Identify the types of insects/pests • Study their chemical control • Study of pheromones, semiochemical and kairomones • Classification of insecticides, fungicides, pesticides and herbicides 	Week 12
	Exam	<ul style="list-style-type: none"> • Mid-Term Assignment/Exam 	Week 13
35.	Identify the biocontrol tactics	<ul style="list-style-type: none"> • Understand the biocontrol agents on the basis of their hosts • Identify the natural enemies of pests, their release methods and specifications 	Week 14
36.	Identify the ecological control methods	<ul style="list-style-type: none"> • Ecological factors effecting natural enemies 	
37.	Knowledge on weed management practices	<ul style="list-style-type: none"> • Devise the methods of weed management • Select the method according to the crop type • Knowledge on weedicides 	Week 15
38.	Study of plant genetics	<ul style="list-style-type: none"> • Genetically modified crops • Causes of genetic variations 	Week 16

39.	Understand genetic resistant varieties	<ul style="list-style-type: none"> • Development of genetic resistant varieties • Inheritance in species 	
40.	Knowledge of genes modifications	<ul style="list-style-type: none"> • Genes modifications in pest to control their infestation • Delayed sterility • Genetic replacement/mutation 	Week 17
41.	Understand pest control tactics	<ul style="list-style-type: none"> • Ecological control methods • Pesticide classifications • pesticide mode of action • Pesticide resistance in pests 	Week 18
42.	Study the role of biotechnology to increase the resistance phenomena	<ul style="list-style-type: none"> • Study of more advanced opportunities to increase resistance mechanisms in plants • Knowledge of genetic modifications • Role of biotechnology and its application 	Week 19
43.	Knowledge of insect/pest natural enemies	<ul style="list-style-type: none"> • Understand the basic categories of insects/pests • Knowledge on predatory insects/pests • Knowledge on parasitic insects/pests • Study of insect/pest pathogens 	
44.	Understand central dogma	<ul style="list-style-type: none"> • Complete knowledge on central dogma patterns • DNA replication • RNA transcription • Protein translation 	
45.	Study of advanced pest/insect management strategies	<ul style="list-style-type: none"> • Proper knowledge on precision benefits in agriculture • The use of more advanced precision technology in IPM • Understand the role of digital agriculture system 	Week 20
46.	Generate the training of trainees	<ul style="list-style-type: none"> • Proper knowledge on hiring skills • Training strategies for new candidates • Time and duration of training 	Week 21
47.	Create projects/assignments	<ul style="list-style-type: none"> • Idea generation • Development of leadership skills 	
48.	Initiate commercialization of projects	<ul style="list-style-type: none"> • Assign the target-based projects 	
49.	Identify pest	<ul style="list-style-type: none"> • Knowledge on pest identification • Understanding of beneficial pest • Agronomic information of crop plants 	

50.	Knowledge on pest monitoring and control	<ul style="list-style-type: none"> • Understand pest management practices • Application of management strategies • Selection of the most appropriate method 	Week 22
51.	How to search for job	<ul style="list-style-type: none"> • Knowledge on web browsing • Understand the best suited job skills • Good job search skills 	Week 23
52.	Create jobs opportunities	<ul style="list-style-type: none"> • Find out the best suited companies, agencies or organizations • Knowledge on industrial sector 	
53.	Knowledge on pest damage boundaries	<ul style="list-style-type: none"> • Understand the pest damage boundaries • Categorize as EIL and ETL • Knowledge on different boundaries for various insect/pest 	
54.	Knowledge of scouting methods	<ul style="list-style-type: none"> • Study of pest scouting tools • Knowledge on pest scouting methods • Choose the best scouting technique 	Week 24
55.	Select pest scouting according to different crops	<ul style="list-style-type: none"> • Conduct pest scouting survey • Knowledge of scouting method for different crops • Select the most effective one for each crop 	
56.	Knowledge of pest monitoring	<ul style="list-style-type: none"> • Regular check on fields • Complete knowledge on pests • Study of pest management tactics 	
57.	What is the status of HR in agribusiness?	<ul style="list-style-type: none"> • Consider yourself as farmer • Do self-evaluation first • Check your responsibilities • Perform scouting at specific area • Record data • Perform monitoring on whole field • Analyze the specificity of insect pest through scouting as well as monitoring • Estimate the losses 	Week 25
	FINAL EXAMS		Week 26

What is freelancing and how you can make money online - BBCURDU

<https://www.youtube.com/watch?v=9jCJN3Ff0kA>

What Is the Role of Good Manners in the Workplace? By Qasim Ali Shah | In Urdu

<https://www.youtube.com/watch?v=Qi6Xn7yKlIQ>

Hisham Sarwar Motivational Story | Pakistani Freelancer

https://www.youtube.com/watch?v=CHm_BH7xAXk

success story of chilli farming | Integrated Pest Management

<https://www.youtube.com/watch?v=iETI9FY17AA>

Syngenta Pakistan whitefly | Integrated Pest Management

<https://www.youtube.com/watch?v=RfnCFR5-ull>

Failure to Millionaire - How to Make Money Online | Fiverr Superhero Aaliyaan Success Story

<https://www.youtube.com/watch?v=d1hocXWSpus>

Annexure-II

SUGGESTIVE FORMAT AND SEQUENCE ORDER OF MOTIVATIONAL LECTURE.

Mentor

Mentors are provided an observation checklist form to evaluate and share their observational feedback on how students within each team engage and collaborate in a learning environment. The checklist is provided at two different points: Once towards the end of the course. The checklists are an opportunity for mentors to share their unique perspective on group dynamics based on various team activities, gameplay sessions, pitch preparation, and other sessions, giving insights on the nature of communication and teamwork taking place and how both learning outcomes and the student experience can be improved in the future.

Session- 1 (Communication):

Please find below an overview of the activities taking place Session plan that will support your delivery and an overview of this session's activity.

Session- 1 OVERVIEW
Aims and Objectives:
<ul style="list-style-type: none"> To introduce the communication skills and how it will work Get to know mentor and team - build rapport and develop a strong sense of a team Provide an introduction to communication skills Team to collaborate on an activity sheet developing their communication, teamwork, and problem-solving Gain an understanding of participants' own communication skills rating at the start of the program

Activity:	Participant Time	Teacher Time	Mentor Time
Intro Attend and contribute to the scheduled.			
Understand good communication skills and how it works.			
Understand what good communication skills mean			
Understand what skills are important for good communication skills			
Key learning outcomes:	Resources:		Enterprise skills developed:
<ul style="list-style-type: none"> Understand the communication skills and how it works. 	<ul style="list-style-type: none"> Podium Projector Computer Flip Chart 		<ul style="list-style-type: none"> Communication Self Confidence Teamwork

<ul style="list-style-type: none"> • Understand what communication skills mean • Understand what skills are important for communication skills 	<ul style="list-style-type: none"> • Marker 	
--	--	--

Schedule	Mentor Should do
Welcome: 5 min	Short welcome and ask the Mentor to introduce him/herself. Provide a brief welcome to the qualification for the class. Note for Instructor: Throughout this session, please monitor the session to ensure nothing inappropriate is being happened.
Icebreaker: 10 min	Start your session by delivering an icebreaker, this will enable you and your team to start to build rapport and create a team presentation for the tasks ahead. The icebreaker below should work well at introductions and encouraging communication, but feel free to use others if you think they are more appropriate. It is important to encourage young people to get to know each other and build strong team links during the first hour; this will help to increase their motivation and communication throughout the sessions.
Introduction & Onboarding: 20mins	Provide a brief introduction of the qualification to the class and play the “Onboarding Video or Presentation”. In your introduction cover the following: <ol style="list-style-type: none"> 1. Explanation of the program and structure. (Kamyabjawan Program) 2. How you will use your communication skills in your professional life. 3. Key contacts and key information — e.g., role of teacher, mentor, and SEED. Policies and procedures (user agreements and “contact us” section). Everyone to go to the Group Rules tab at the top of their screen, read out the rules, and ask everyone to verbally agree. Ensure that the consequences are clear for using the platform outside of hours. (9am-8pm) 4. What is up next for the next 2 weeks ahead so young people know what to expect (see pages 5-7 for an overview of the challenge). Allow young people to ask any questions about the session topic.
Team Activity Planning: 30 minutes	MENTOR: Explain to the whole team that you will now be planning how to collaborate for the first and second collaborative Team Activities that will take place outside of the session. There will not be another session until the next session so this step is required because communicating and making decisions outside of a session requires a different strategy that must be

	<p>agreed upon so that everyone knows what they are doing for this activity and how.</p> <ul style="list-style-type: none"> • “IDENTIFY ENTREPRENEURS” TEAMACTIVITY • “BRAINSTORMING SOCIAL PROBLEMS” TEAMACTIVITY” <p><i>As a team, collaborate on a creative brainstorm on social problems in your community. Vote on the areas you feel most passionate about as a team, then write down what change you would like to see happen.</i></p> <p>Make sure the teams have the opportunity to talk about how they want to work as a team through the activities e.g., when they want to complete the activities, how to communicate, the role of the project manager, etc.</p> <p>Make sure you allocate each young person a specific week that they are the project manager for the weekly activities and make a note of this.</p> <p>Type up notes for their strategy if this is helpful - it can be included underneath the Team Contract.</p>
<p>Session Close: 5 minutes</p>	<p>MENTOR: Close the session with the opportunity for anyone to ask any remaining questions.</p> <p>Instructor: Facilitate the wrap-up of the session. A quick reminder of what is coming up next and when the next session will be.</p>

MOTIVATIONAL LECTURES LINKS.

<u>TOPIC</u>	<u>SPEAKER</u>	<u>LINK</u>
How to Face Problems in Life	Qasim Ali Shah	https://www.youtube.com/watch?v=OrQte08MI90
Just Control Your Emotions	Qasim Ali Shah	https://www.youtube.com/watch?v=JzFs_yJt-w
How to Communicate Effectively	Qasim Ali Shah	https://www.youtube.com/watch?v=PhHAQEGehKc
Your ATTITUDE is Everything	Tony Robbins Les Brown David Goggins Jocko Willink Wayne Dyer Eckart Tolle	https://www.youtube.com/watch?v=5fS3rj6eIFg
Control Your EMOTIONS	Jim Rohn Les Brown TD Jakes Tony Robbins	https://www.youtube.com/watch?v=chn86sH0O5U
Defeat Fear, Build Confidence	Shaykh Atif Ahmed	https://www.youtube.com/watch?v=s10dzfbozd4
Wisdom of the Eagle	Learn Kurooji	https://www.youtube.com/watch?v=bEU7V5rJTtw
The Power of ATTITUDE	Titan Man	https://www.youtube.com/watch?v=r8LJ5X2eigU
STOP WASTING TIME	Arnold Schwarzenegger	https://www.youtube.com/watch?v=kzSBrJmXgdg
Risk of Success	Denzel Washington	https://www.youtube.com/watch?v=tbnzAVRZ9Xc

SUCCESS STORY

S. No	Key Information	Detail/Description
1.	Self & Family background	<p>Faiz Ur Rehman, who lives in Kasur (Punjab), is an example of how hard work and perseverance can reap rich rewards when bidding for IPM training. The IPM trainer works exclusively on different farms and has earned, on average, US\$10,000 per month for the past several months. But this isn't a story of overnight success — Faiz Ur Rehman had to work hard to differentiate himself and stay true to his goal.</p> <p>It was a full year later, in May 2019, when Faiz Ur Rehman finally decided to jump in. He signed up for one of the numerous farms that connect farmers or land owner people or companies that have small projects, like farm development practices. He had already started a small business to help pay for his college education, so he was nervous and apprehensive about the decision. "I gave myself two or three months at most. If I didn't succeed, then I would go back to running the business as it was showing potential," he says.</p> <p>If at first, you don't succeed, try try again</p>
2.	How he came on board NAVTTC Training/ or got trained through any other source	Certification in IPM (integrated pest management) from (NAVTTC partner institute)
3.	Post-training activities	<p>Faiz Ur Rehman's area of expertise is in Pest scouting and Pest monitoring. In his first month using IPM tactics, he pitched mostly for projects centered around monitoring, scouting and management. But it wasn't so simple. In the first few weeks, he didn't hear back from even a single farmer, despite pitching for dozens of projects.</p> <p>"I need to understand about the work, so I visit different fields, participated in farms, and analyzed profiles of successful farmers. It was an uphill struggle, but I didn't want to give up," he explains.</p> <p>Faiz Ur Rehman says he understands why clients would be apprehensive giving projects to untested IPM manager. They have hundreds of options to choose from he explains, and to give a project to someone</p>

		<p>with no experience requires a strong leap of faith.</p> <p>A slow stream of projects started to come Faiz Ur Rehman way. Within a few months, he was landing an average of a hundred projects every month, with a large number of repeat farmers. He also expanded the range of his professional services, branching out from logo design to business cards, banners, Facebook cover pages, letterheads, and stationery.</p> <p>But he's had to face his fair share of challenges too. The shoddy state of internet infrastructure in his city, Kasur, threatened to derail his IPM career. "Sometimes I haven't had connectivity for two days straight," he explains. "That's unthinkable for someone who makes his livelihood on the farms."</p>
4.	Message to others (under training)	<p>Take the training opportunity seriously Impose self-discipline and ensure regularity Make Hard work pays in the end so be always ready for the same.</p>

Note: Success story is a source of motivation for the trainees and can be presented in several ways/forms in a NAVTTC skill development course as under: -

1. To call a passed out successful trainee of the institute. He will narrate his success story to the trainees in his own words and meet trainees as well.
2. To see and listen to a recorded video/clip (5 to 7 minutes) showing a successful trainee Audio-video recording that has to cover the above-mentioned points. *
3. The teacher displays the picture of a successful trainee (name, trade, institute, organization, job, earning, etc.) and narrates his/her story in the teacher's own motivational words.

* *The online success stories of renowned professional can also be obtained from **Annex-II***

Workplace/Institute Ethics Guide

Work ethic is a standard of conduct and values for job performance. The modern definition of what constitutes good work ethics often varies. Different businesses have different expectations. Work ethic is a belief that hard work and diligence have a moral benefit and an inherent ability, virtue, or value to strengthen character and individual abilities. It is a set of values-centered on the importance of work and manifested by determination or desire to work hard.

The following ten work ethics are defined as essential for student success:

1. **Attendance:**

Be at work every day possible, plan your absences don't abuse leave time. Be punctual everyday.

2. **Character:**

Honesty is the single most important factor having a direct bearing on the final success of an individual, corporation, or product. Complete assigned tasks correctly and promptly. Look to improve your skills.

3. **Team Work:**

The ability to get along with others including those you don't necessarily like. The ability to carry your weight and help others who are struggling. Recognize when to speak up with an idea and when to compromise by blend ideas together.

4. **Appearance:**

Dress for success set your best foot forward, personal hygiene, good manner, remember that the first impression of who you are can last a lifetime

5. **Attitude:**

Listen to suggestions and be positive, accept responsibility. If you make a mistake, admit it. Values workplace safety rules and precautions for personal and co-worker safety. Avoids unnecessary risks. Willing to learn new processes, systems, and procedures in light of changing responsibilities.

6. **Productivity:**

Do the work correctly, quality and timelines are prized. Get along with fellows, cooperation is the key to productivity. Help out whenever asked, do extra without being asked. Take pride in your work, do things the best you know-how. Eagerly focuses energy on accomplishing tasks, also referred to as demonstrating ownership. Takes pride in work.

7. **Organizational Skills:**

Make an effort to improve, learn ways to better yourself. Time management; utilize time and resources to get the most out of both. Take an appropriate approach to social interactions at work. Maintains focus on work responsibilities.

8. Communication:

Written communication, being able to correctly write reports and memos.
Verbal communications, being able to communicate one on one or to a group.

9. Cooperation:

Follow institute rules and regulations, learn and follow expectations. Get along with fellows, cooperation is the key to productivity. Able to welcome and adapt to changing work situations and the application of new or different skills.

10. Respect:

Work hard, work to the best of your ability. Carry out orders, do what's asked the first time. Show respect, accept, and acknowledge an individual's talents and knowledge. Respect's diversity in the workplace, including showing due respect for different perspectives, opinions, and suggestions.