

National Vocational Certificate Level 2 in Agriculture (Cotton Processing)



CBT Curriculum



National Vocational & Technical Training Commission

5th Floor, Evacuee Trust Complex

Sector F-5/1, Islamabad

Tel: +92 51 904404

Fax: +92 51 904404

Email: info@navttc.org

Author:

Dr. Khalid Mahmood (Director General Pakistan Seed Accreditation and Certification Authority Islamabad) , Dr. Abdul Saboor (Dean faculty of Agri-economics Arid Agriculture University Rawalpindi)

Reviewed by:

Dr. Raimund Sobetzko (Team Leader, Component 2 TVET Reform Support Programme) , Mr. Muhammad Naeem Akhtar (Deputy Team Leader Component 2 TVET Reform Support Programme) , Mr. Ralf Strier (Senior International Technical Advisor, TVET Reform Support Program)

Layout and Design by:

Ms. Maria Arif (Freelance Consultant)

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1. Introduction

Pakistan is the 4th largest producer of cotton in the world where around 1.3 million farmers are cultivating the crop across 3 million hectares which constitute about 15 percent of the cultivated area in the country. Cotton crop accounts for 7.3 percent of the value added in agriculture and 1.6 percent to GDP. Besides, there are serious quality related issues of cotton picking and processing. Lint quality depends on a variety of factors which include variety, weather conditions, cultural, harvesting and storage practices, moisture and trash contents and ginning processes. We find around 8 percent trash in raw cotton in the country as against up to 0.78 percent in USA. This has shattered the quality of processing and ultimately we cannot find attractive markets for our final produce in the world. As per FAO standards, Pakistan falls in the poor category of cotton quality as there is existence of high impurity content and high counts of trash and moisture contents which create hurdle in the processing of cotton. There is an international standard that the moisture contents of cotton lint should not be more than 8 percent. Similarly there should be minimum level of adulteration, trash and foreign matters (non-fibrous matters).

1.1 Description of the structure, Duration and Distribution of the course

The course would be launched during the time period when ginning process is started so as to impart practical knowledge to the learners. The curriculum contains a detailed list along with all the material which is required for practical exercises. The strength of class should not exceed 30 participants to carry out the practical work smoothly. The course contains 7 modules and at the end of the modules a short revision and assessment should be conducted. The summary revision should focus on the practical work and use of possible methods for the assessments.

The duration of the course for the cotton processing is of 4 months consisting of five days training per week. The five days per week schedule is bifurcated into theory and practical, where every day the theory and practical time would be ranged from 3 to 4 hours. The total hours of the course are 326 which are further bifurcated into theory and practical as 68 and 258 hours respectively along with 80 hrs for periodical assessments. The total time also include assessment hours for each module, flexible hours and time for sessional assessment.

1.2 Purpose, specific characteristics and main objectives of the training programme

Like cotton pickers, processors and allied managers in processing mills and factories are neither fully skilled nor not conscious of the quality of cotton fibre. Improper picking methods and adulteration of cotton with water and other material is not realized in the processing of separating lint from seed. The fundamental goal of this curriculum is to develop a comprehensive learning tool for cotton selectors, processors and respective farm managers as well as technical ginning staff of mill owners in ginning factories so that the quality of fibre could be refined by following standard procedure. It is noted that gins can only preserve fibre quality if the machines are operated gently. This is the way that dramatically improves the market value of fibre. The objective of the course is to develop expertise among the technical staff regarding the ways and means of gentle and good

ginning.

1.3 Skills development by action orientation and relevance of competencies

The trainees of this training programme would be guided by demonstrating them the actual way of processing in all the stages (preparation of seed cotton (Phutti), pre-cleaning, ginning and pressing) according to international standards. They would be shown pictures, charts, diagrams and video expressions in addition to actual visit of ginning factories for visually judging the machines. After some learning they are to do most of the work practically by themselves so that they could transmit the same to others in the professional life.

The teacher should try to mitigate the gap between the literate and illiterate learners by focusing on the students who have severe learning problems. The teacher should give advice and special support to the weak learners. It is generally recommended that if there is a serious learning problem for a trainee or there is issue non-seriousness, it would be better for him/her to leave the course. There should be a permanent supervision of the trainees in addition to learner centred methods of training and learning support so as to invite their reasonable responses and thus minimize the dropout rate at the end of the course.

The course has been constituted in such a way that the trainees could attain complete skills and quality methods of cotton processing in its technical way and as per international standards. The training is structured in such a way that the participants could be able to deliver efficiently in ginning factories and communicate effectively at grass root level after the completion of this course. Moreover, a sense of responsibility would also be generated among the trainees of this course so that they could deliver successfully in their practical life with complete integrity and zeal.

1.4 Entry level, minimum teaching qualification and medium of instruction

The incumbent in this training should be literate at good level. Preferably, they have some background of technical know how of ginning in a factory. They should be in the age bracket of 18 to 50 years, preferably 20 to 30 years of age with entry qualification Matric. The age relaxation can be granted in special cases. Finally, they should be healthy and physically active to work continuously for hours in the cotton field. Preference would be given to those who are serving as technical staff in the ginning factory.

The instructor of this course should be at least graduate preferably with sound technical knowledge in the relevant field. Preference should also be given to those trainers who have been involved in ginning process. It is also important to select that instructor who is proficient in local languages of the participants. Medium of instruction should be national language – Urdu. The draft of curriculum should be translated into Urdu language. In addition to that, the teaching material would also be translated in the mother tongue Sariaki or Sindhi, etc. to make it easily understandable for indigenous people. As the course basically focuses on the practical teaching; thus the proportion of hours for the theory should be limited to around 20 percent of the total

time. The practical teaching and experimentation is the compulsory requirement for each module of cotton processing at the cotton ginning factories.

In each modular assessment, every trainee should be asked to practically demonstrate of what he/she has learnt during training in

each learning unit of the module A presentation and practical demonstration should be the core part of assessment. In this regard, the assessment at the end of each module should not be less than 3 hours. A final assessment would also be made at the completion of the course and a time of 6 hours is defined for this assessment. The absence of candidate should be regularised by allowing for re- attending the missing module. A minimum of 80 percent attendance in each module of the course should be mandatory.

The teacher should try to mitigate the gap between the literate and illiterate learners by focusing on the students having severe learning problems. The teacher should give advice and special support to the weak learners. It is generally recommended that if there is a serious learning problem for a trainee or there is some issue non-seriousness, it would be better for such a candidate to leave the course. There should be a permanent supervision of the trainees in addition to learner centred methods of training and learning support so as to invite their reasonable responses and thus minimize the dropout rate at the end of the course.

During learning an interactive environment should be created. The teacher should be in close contact to the students and identify their special needs. There should be some flexibility in the implementation of daily contact hours with small breaks whenever required. A continuous training for up to 4 hours is not recommended. Similarly, during practical time, the schedule should not be highly tight. Creation of interest is the core of training as once it is created, the learners' response become marvellous and thus overall effectiveness of the course is improved.

1.5 Laws and regulations; and suggested distribution of modules

The instructor of this course should be familiar with standard laws and regulations regarding health standards, reasonable working conditions, child labor, women and sexual harassment particularly among the communities where cotton processing is made. Similarly, there are some regulations regarding social welfare coverage and old age benefits which should be in the notice of the trainers and trainees. Sometimes, there is law but there is lack of application. The instructor must guide the trainees regarding the true meaning and implementation of these laws. The most common set of applicable laws and regulations is as follows:

- 1). Amended version of Cotton Control Act, Government of the Punjab and Sindh, 2005.
- 2). Employees' Old-Age Benefits Act, 1976. ACT No. XIV.

- 3) Protection Against Harassment Of Women At Work Place Act 2010.
- 4) Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013.

The modules of this course have been developed in such a way that there is reasonable symmetric consistency across all such modules and their respective learning units. There is no knowledge and skill gap in the distribution of modules. The trainee would not be able to understand next module until he has mastery over the first module. The benefit of the course to the trainees would only be possible if all the modules are attended.

1.6 Definition of the trade

This trade accounts for the empowerment of cotton processors, supervisors, mill owners and technical staff in the shape of standard techniques for quality cotton processing and in such a way that Pakistan could meet international standards of cotton quality for fairly competing at global level in terms of price and quality.

1.7 Overall Objectives of the course

The core objective of this course is to enable the potential cotton processors to separate lint from seed cotton gently with minimum fibre character losses and mill managers to understand the key benefits of standard cotton processing as well as learn appropriate tools, techniques and precautions to undertake the functioning of processing. So, the aim of this course is to develop the fundamental knowledge, skill and competency among the trainees regarding preparation of proper weighing of cotton received at ginning factory, inspecting for quality of received cotton in ginning factory, making heaps, preparation for ginning, pre-cleaning of cotton, perform ginning and pressing. The trainees of this course would learn the proper way of measuring cotton with weighing machines, issuing receipts and making payments by keeping record of each and every thing. They would be able to develop reasonable skills regarding checking of moisture and disease cotton ratios, non-fibre foreign matters, weighing trash percentage, grading cotton by making separate heaps, avoiding non-cotton bags, spreading cotton for drying, feed cotton to suction pipes. Similarly, they would learn the appropriate methods of checking pre-cleaning machines, sharpness of gin saws occasionally and gin speed cleaning screens after specific period of time, dispose off waste, checking moisture meter, prepare proper packing by weighing and applying stamps and labels. For each of these techniques, practical demonstration would be given. Moreover, all the precautionary measures would be introduced among the learners so that they could ensure appropriate processing and quality cotton at the end of the course.

1.8 Competencies gained after completion of course

After successful participation of all the modules of this course, the participants can work effectively in the cotton processing under

all physical and socio-economic conditions. Pre-processing and post-processing precautions would also be learnt. They would gain expertise regarding weighing and inspecting received cotton at ginning factory, making heaps and preparing for ginning, and finally regarding performing ginning and processing after pre-cleaning cotton. Moreover, they would be willing and able to check moisture and diseased cotton rations in addition to weighing trash percentage and maintaining record. There is a common mistake among cotton processors in ginning factories that they avoid making heaps of cotton for its reasonable grading. Also, cotton is neither spread nor dried before actually ginning in the factory. This course will certainly enhance their ability in these ignored issues. This course would help the trainers to remove this deficiency and develop skill to pick cotton of good quality. Moisture contents are very common in the picked cotton which is either intentional to gain the weight or unconscious attempt for lack of knowledge regarding loss of fibre quality. Factory owners and cotton selectors are to be very careful of these issues. They can increase their command of ensuring good quality fibre by learning new techniques and tools. Checking the sharpness of gin saw and gin speed are the core skills to be gained through this course. Besides competencies regarding performance of ginning, the standard way of performing pressing would help the trainees to become able to observe moisture meter, prepare proper packing, weighing and stacking of bails and applying stamps and labels. Finally, there would be a substantial difference in the performance and competency level among cotton selectors and processor among those who are qualified as compared to those who did not attend the course.

1.9 Personal requirement/ Worker Traits

It should be the part of competency standards that all the questions and observations which come in the mind of the trainee should be fully addressed with proper logic and example so that he could deliver the same in practical life. They must know all the record of training tools including reading material, charts, videos etc which could help them in future for completely observing the standard procedure of cotton processing. They should have a specimen of proper dress including mask to avoid dust.

1.10 Opportunities for employment and career advancement

A trained cotton processor, factory manager and cotton selector would get advantage of his training in various ways. The chief among such advantages is the availability of good jobs not only as direct cotton processor but as Factory Supervisor/Manager in ginning factories. There is good level of optimism that the skills and competencies achieved in this course would help the cotton processors to do their field work efficiently and effectively and enhance the market value of their products (both cotton lint and cotton seed) among the related stakeholders. Since this course is the new initiative in Pakistan, the trained processor would get recognition in the field among the community of factory owners in cotton belt and thus able to earn lucrative wages.

2 Overview about the Curriculum for cotton processing trade

| Module title and aim | Learning units | Duration |
|---|--|---|
| <p>Module 1 “Weigh seed cotton (Phutti) delivered at factory” The aim of this module is to develop the fundamental knowledge, skill and competency among the trainees regarding weighing of seed cotton delivered at Ginning Factory by brokers/commission men or directly by farmers.</p> | <p>LU-1: Weigh properly on weighing machine LU-2: Issue receipts of seed cotton delivered in the factory LU-3: Make payments of delivered seed cotton LU-4: Maintain record of seed cotton and respective payments</p> | <p>10 hrs 08 hrs 06 hrs 08 hrs 32 hrs</p> |
| <p>Module 2 “Inspection of delivered seed cotton for quality” The aim of this module is to develop the fundamental knowledge, proficiency and competency among the learners regarding inspection of seed cotton which is delivered in the ginning factory</p> | <p>LU-1: Check moisture ratio LU-2: Check diseased cotton ratio LU-3: Check non fibre foreign matter in Seed Cotton LU-4: Weigh trash percentage LU-5: Maintain Record of complete inspection</p> | <p>12 hrs 10 hrs 10 hrs 12 hrs 16 hrs 60 hrs</p> |
| <p>Module 3 “Make heaps of seed cotton (Phutti)” The primary objective of this module is to impart fundamental knowledge, know how and technical expertise among the trainees regarding making heaps keeping national and international standards in view</p> | <p>LU-1: Grade Seed Cotton LU-2: Make grade wise heaps of seed cotton LU-3: Selection of platform for heaps LU-4: Maintain records of graded seed cotton</p> | <p>20 hrs 16 hrs 16 hrs 12 hrs 64 hrs</p> |
| <p>Module 4 “Prepare for ginning” The aim of this module is to develop the primary but necessary knowledge, and appropriate proficiency among the trainees regarding preparation for ginning.</p> | <p>LU-1: Spread cotton LU-2: Let the seed cotton dry LU-3: Pick non fiber foreign matters LU-4: Feed cotton to suction pipes</p> | <p>10 hrs 12 hrs 08 hrs 08 hrs 38 hrs</p> |
| <p>Module 5 “Pre clean cotton” The aim of this module is to give basic knowledge and procedure of pre cleaning cotton to the trainees.</p> | <p>LU-1: Check pre cleaning machines LU-2: Clean screens after every one hour LU-3: Dispose off waste</p> | <p>08 hrs 08 hrs 10 hrs 26 hrs</p> |

| | | |
|--|---|---------------|
| Module 6 “Perform ginning” | LU-1: Check sharpness of gin saws | 12 hrs |
| The aim of this module is to develop all the necessary knowledge and proficiency relating to actual performance of ginning among the learners. | LU-2: Check gin speed | 12 hrs |
| | LU-3: Handle cotton seeds properly | 12 hrs |
| | LU-4: Prevent seed cotton from extreme weather conditions | 12 hrs |
| | | 48 hrs |
| Module 7 “Perform pressing” | LU-1: Observe moisture meter | 12 hrs |
| The aim of this module is to develop the basic knowledge, skill and competency among the trainees regarding pressing | LU-2: Prepare proper packing | 12 hrs |
| | LU-3: Apply stamps an labels | 10 hrs |
| | LU-4: Weigh bails of cotton lint | 08 hrs |
| | LU-5: Make proper stacking of cotton bails | 08 hrs |
| | LU-6: Maintain records | 08 hrs |
| | | 58 hrs |

7 modules: 326 hours
Assessment/revision: 50
hours Flexibility of hours:
15 hours
Final Assessment and revision : 15 hours
TOTAL HOURS: 406

3. Teaching and Learning Guide: Cotton Proccession Trade

3.1 Module 1: WEIGH SEED COTTON (PHUTTI) DELIVERED AT FACTORY

Objective of the Module: The aim of this module is to develop the fundamental knowlledge, skill, competency and attitude among the trainees regarding weighing of seed cotton delivered at Ginning Factory by brokers/commission men or directly by farmers.

Duration: 32 Theory: 7.5 Practice: 24.5 hours
hours hours

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | LearningPlace |
|--|---|--|--|--|--|
| LU-1: Weigh properly on weighing machine | <p>Trainee will be able to</p> <ol style="list-style-type: none"> 1. Identify the types of weighing machines, i.e. Weigh Bridge (a. Manual, b. Electronic), Bora weighing scale. 2. Recognise the weighing procedure of each weighing machine. 3. Get the awareness of the limitations of each weighing machine. 4. Analyze the calibration of each weighing system. | <ol style="list-style-type: none"> 1. Shape and design of weighing machines. 2. Demonstration to distinguish the variety of weighing machine. 3. Procedure of weighing mechanism and system. 4. Practical understanding for the calibration of each weighing machine for proper work. 5. Get the skill and competency of proper weighing as for instance the system of gross weighing and net weighing (Loaded truck- Empty truck= net weight). | <p>Total: 10 hrs</p> <p>Theory: 2 hrs</p> <p>Practical: 8 hrs</p> | <p>Pictures of different weighing machine. Coloured Charts, demo of proper weighing Example of the calculation of net weights. Physical presence of various weighing machines.</p> | <p>Theory Class Room</p> <p>Practical Cotton Factory</p> |
| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials | Learning |

| | | | | Required | Place |
|--|---|---|---|--|---|
| <p>LU-2: Issue receipts of seed cotton delivered in the factory</p> | <p>The learner will be able to</p> <ol style="list-style-type: none"> 1. Identify the typical receipts of cotton factory showing truck number, factory serial number, quality/variety of seed cotton and name of supplier. 2. Recognise the distribution and purpose of various copies of receipts. 3. Get the skill of issuing receipts by keeping and record of counter foil. | <ol style="list-style-type: none"> 1. Creation of awareness of the process of issuing receipts. 2. Practical ways to avoid errors and maintain transparency in the issuance of factory receipts. 3. Provision of all the information of systematic chain in the factory process. 4. Demonstration for the final disposal of the different copies of receipts. | <p>Total: 8 hrs</p> <p>Theory: 2 hrs</p> <p>Practical: 6 hrs</p> | <p>Pictures of copy of receipts. Charts for procedural chain Flow chart of distribution of receipts.</p> | <p>Theory Class Room</p> <p>Practical Entry Desk of Cotton factory</p> |
| <p>LU-3: Make payments of delivered seed cotton</p> | <p>The learner will be able to</p> <ol style="list-style-type: none"> 1. Perform the procedural steps of payment i.e. adhoc payment which is around 70 to 80 % of the total, net payment, etc. 2. Perform the various payment systems (cash, bank draft or cheques) of the factory. 3. Identify the different objectives of adhoc payment. | <ol style="list-style-type: none"> 1. Awareness about various modes of payment. 2. Knowledge and skill of procedural requirements for payments in the factory. 4. Demonstration of different modes of payments. 5. Standard way of writing crossed cheques. | <p>Total: 6 hrs</p> <p>Theory: 1.5 hrs</p> <p>Practical: 4.5 hrs</p> | <p>Some samples registers and cheques /drafts/ vouchers.</p> | <p>Theory Class Room</p> <p>Practical Appropriate administrative desk of Cotton ginning factory</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | LearningPlace |
|--|--|---|--|---|--|
| <p>LU-4: Maintain record of seed cotton and respective payments</p> | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Maintain the manual record of arrival and payment in a register. 2. Get the skills of record keeping in specific files. 3. Recognize the adhoc phase and its record keeping. 4. Maintain the record in Excel Sheets of computer. | <ol style="list-style-type: none"> 1. Awareness of various methods/stages of record keeping. 2. Awareness of the journal, ledger & folio's. 3. Demonstration of journalising, posting and folioing. 4. Practical revelation of constructing the multiple accounts in the ledger. 5. Information of consolidated statement of several accounts. 6. Demonstration of the record (manual as well as computerized) and file maintaining in reasonable sequence in different categories. | <p>Total : 8 hrs</p> <p>Theory: 2 hrs</p> <p>Practical: 6 hrs</p> | <p>Samples of journal, ledger & folio. Charts and demo of record keeping. Actual files, registers and computers</p> | <p>Theory Class Room</p> <p>Practical Factory Office record keeping.</p> |

3.2 Module 2 INSPECTION OF DELIVERED SEED COTTON FOR QUALITY

Objective of the Module: The aim of this module is to develop the fundamental knowledge, proficiency and competency among the learners regarding inspection of seed cotton which is delivered in the ginning factory

Duration: 60 hours Theory: 12 hours Practice: 48 hours

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|-----------------------------------|---|---|--|--|---|
| LU-1: Check moisture ratio | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Identify the presence of moisture contents in the seed cotton. 2. Identify the application of moisture assessing equipment. 3. Recognize the configuration of moisture ratio in the seed cotton. 4. Identify the measures to minimize the moisture. | <ol style="list-style-type: none"> 1. Awareness about various sources of moisture. 2. Taking practical knowledge of various methods of moisture checking. 3. Information of required percentage of moisture (7.5 to 8%) 4. Methods of calculations of availability of moisture in seed cotton. 5. Get the awareness of harms of higher/lower moisture ratio. | <p>Total: 12 hrs</p> <p>Theory : 2 hrs</p> <p>Practical: 10 hrs</p> | <p>Pictures of prevalence of inappropriate moisture. Demo for checking moisture. Charts of moisture limits</p> | <p>Theory Class Room</p> <p>Practical Storage place of Cotton ginning factory</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|--|---|---|---|---|--|
| LU-2: Check diseased cotton ratio | The student will be able to 1. Identify the diseased and healthy cotton. 2. Calculate the percentage of diseased cotton in the heap of seed cotton. 3. Recognise merits and demerits of classification of cotton. | 1. Learning of optimal ways for checking the diseased cotton ratio. 2. Visual Awareness of different categories of cotton. 3. Importance of classification. 4. Understanding the harms of diseased cotton. 5. Demonstration of how to calculate the diseased cotton ratio. | Total: 10 hrs Theory: 2 hrs Practical: 8 hrs | Pictures, of diseased & healthy cotton Classification Charts | Theory Class Room Practical Storage place of Cotton ginning factory |
| LU-3: Check non fibre foreign matter in Seed Cotton | Learner will be able to 1. Identify the variety of frequently contaminated non fibre elements. 2. Recognise the segregation of non fibre matters. 3. Perform how to apply the different equipments i.e. Dandari, Khillari, etc. used for checking/separation of non fibre elements. | 1. Recognition of non-fibre matters. 2. Using of different equipments. 3. Awareness of placing separate drums for non fibre contents. 4. Practical knowledge of the harm of non-fibre elements to the final product. 5. Demonstration for the classification/ identification of non fibre elements. | Total: 10 hrs Theory: 2 hrs Practical: 8 hrs | Pictures. Charts. Display sign boards for use of proper places for non fibre matters. | Theory Class Room Practical Cotton factory |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|---|--|---|---|---|--|
| LU-4: Weigh trash percentage | The student will be able to 1. Identify and classification of trash contents. 2. calculate the trash percentage. 3. Get the skills of various exemption percentages of trash with respect to area (around 2.5 % in Multan) | 1. A brief knowledge of appropriate trash percentage. 2. Practical learning for the identification of trash. 3. Ways and means to calculate the trash percentage. 4. Understanding of expected harms of inappropriate trash ratio. 5. Demonstration of the tables of various trash percentages. | Total: 12 hrs Theory: 3 hrs Practical: 9 hrs | Pictures of trash. Charts, Table of appropriate trash percentage. Electronic mini weighing machine. | Theory Class Room Practical Cotton factory |
| LU-5: Maintain Record of complete inspection | The student will be able to 1. Identify the net weighing procedure and thus maintain record for total payment. 2. Segregate the presence of moisture, diseased cotton and trash in the record keeping. 3. Identify the various thresholds of contamination, diseased cotton and trash. 4. Perform the record keeping of inspection in computers along with pictorial expressions. | 1. Understanding various methods of maintaining record. 2. Awareness of moisture presence and moisture ratio. 3. Learning for maintaining the record of net weight. 4. Practical demonstration of keeping the physical and computerized record of complete inspection. | Total: 16 hrs Theory: 3 hrs Practical: 13 hrs | Samples of seed cotton with and without moisture. Pictures of diseased cotton Pictures of trash | Theory Class Room Practical Storage place of Cotton ginning factory |

3.3 Module 3: MAKE HEAPS OF SEED COTTON (PHUTTI)

Objective of the Module: The primary objective of this module is to impart fundamental knowledge, knowhow and technical expertise among the trainees regarding making heaps keeping national and international standards in view

Duration: 64 hours Theory: 15 hours Practice: 49 hours

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|--------------------------------|---|--|---|---|---|
| LU-1: Grade Seed Cotton | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Identify the multiple aspects i.e. colour, contamination ratio, trash ratio, diseased cotton ratio, shells, etc. for the grading of cotton. 2. Get the skills of appropriate uses of different grades of cotton. 3. Identify the grade wise deduction procedure to maintain quality. | <ol style="list-style-type: none"> 1. Methods of grading cotton. 2. Familiarization of factors of grading cotton, colour (Heo, Lightness, Chroma); trash (Large leaf, Pepper leaf), preparation. 3. Scaling of various grades of cotton (>80% is good cotton, <80% is low cotton) 4. Understanding the benefits of grading seed cotton i.e. 2nd grade is most suitable for making course count yarn thread. 5. Demonstration of universal cotton standards (1) Good Middling G.M., (2) Strick Middling, S.M. (3) Middling, M., (4) Strick Low Middling, S.L.M. (5) | <p>Total: 20 hrs</p> <p>Theory: 4 hrs</p> <p>Practical: 16 hrs</p> | <p>Actual seed cotton of various grades. Coloured Pictures of different grades and grading standards. Standard boxes of seed cotton prepared by Pakistan Cotton Standards Institute (PCSI).</p> | <p>Theory Class Room</p> <p>Practical A specific room of Cotton ginning factory</p> |

| | | | | | |
|--|---|--|---|---|---|
| | | <p>Good Ordinary G.O</p> <p>6. Learning of the multiple colors of cotton as white, light spotted, spotted, tinged.</p> | | | |
| <p>LU-2: Make grade wise heaps of seed cotton</p> | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Get the skills of grade wise heaping of cotton. 2. Identify the use of each class of cotton. 3. Recognise the usefulness of each grade of cotton. | <ol style="list-style-type: none"> 1. Awareness regarding purposes and importance of making heaps of seed cotton. 2. Recognition of variety/classes of heaps, i.e. 1st, 2nd, 3rd, 4th, 5th and their respective required criteria. 3. Demonstration of all elements taken into consideration for grading of cotton. 4. Demonstration of grade wise heaping. | <p>Total: 16 hrs</p> <p>Theory: 4 hrs</p> <p>Practical: 12 hrs</p> | <p>Pictures, graphs, Material for showing variety of seed cotton heaps.</p> | <p>Theory Class Room</p> <p>Practical Storage place of Cotton factory</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|---|---|--|--|--|---|
| LU-3: Selection of platform for heaps | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Identify the all suitable place for making heaps. 2. Identify the possible contaminations in heap i.e. jute, suttli, plastic cord, etc. of non cotton bags. 3. Adopt the different methods for avoid contamination from outsides and other abnormalities, i.e. weather, hazards, etc | <ol style="list-style-type: none"> 1. Understanding the importance of the suitable place for making heaps. 2. Understanding the harms and possible addition contamination in making heaps 3. Familiarization of demerits of abnormalities. 4. Learning alternative methods for making heaps without contamination. | <p>Total: 16 hrs</p> <p>Theory: 4 hrs</p> <p>Practical: 12 hrs</p> | Pictures, Physical monitoring in cotton ginning factory. | <p>Theory Class Room</p> <p>Practical Cotton factory</p> |
| LU-4: Maintain records of graded seed cotton | <p>The learner will be able to</p> <ol style="list-style-type: none"> 1. Recognise the record keeping of graded seed cotton. 2. Get skills of heap-wise grading record. 3. Avoid the inappropriate use of grades for optimal output. 4. Maintain the record of grade wise deduction. | <ol style="list-style-type: none"> 1. Skill of maintaining grading record of cotton 2. Learning the criteria for heaping as well as grading of cotton. 3. Importance of record to avoid grading mishaps. 4. Learn suitability between type of grades and product. | <p>Total: 12 hrs</p> <p>Theory: 3 hrs</p> <p>Practical: 9 hrs</p> | Pictures, Sample ledgers. | <p>Theory Class Room</p> <p>Practical Cotton factory office</p> |

3.4 Module 4 Title: PREPARATION FOR GINNING

Objective of the Module: The aim of this module is to develop the primary but necessary knowledge, and appropriate proficiency among the trainees regarding preparation for ginning

Duration: 38 hours Theory: 7 hours Practice: 31 hours

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|---------------------|--|--|---|--|--|
| LU-1: Spread cotton | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Recognise the importance of spreading cotton. 2. Gets awareness regarding the selection of appropriate place for cotton spreading. 3. Apply the various equipments used for cotton spreading. | <ol style="list-style-type: none"> 1. Selection of the place for cotton spreading (around 6 inches higher cemented/ paved place than normal place). 2. Learning significance of the appropriate place. 3. Knowledge of tools required for spreading the cotton. 4. Familiarization of the application of various tools for spreading the cotton. | <p>Total: 10 hrs</p> <p>Theory: 2 hrs</p> <p>Practical 8 hrs</p> | Coloured Pictures raised as well as paved place. Spreading cotton. | <p>Theory Class Room</p> <p>Practical Cotton factory</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|---|---|---|--|--|--|
| LU-2: Let the seed cotton dry | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Recognise the usefulness of dry cotton. 2. Identify the required level of drying cotton. 3. Identify the secure/ specific place for drying cotton. 4. Perform the different techniques to make the seed cotton dry. 5. Advise the required level of drying cotton. | <ol style="list-style-type: none"> 1. Learn about the methods for drying cotton (manual which is frequently used method, dryer). I.e. natural, artificial method. 2. Get the knowledge of required level of drying. 3. Noting appropriate timing and place for drying cotton. 4. Knowing the methods of equipped labour for drying cotton. 5. Know how to identify the dry cotton. | <p>Total: 12 hrs</p> <p>Theory: 2 hrs</p> <p>Practical 10 hrs</p> | Pictures, graph, demo. Paved/ raised plenth. | <p>Theory Class Room</p> <p>Practical Cotton factory</p> |
| LU-3: Pick non fibre foreign matters | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Identify the variety of non fibre foreign matters. 2. Detect the non-fibre elements in the seed cotton. 3. Perform the various methods for disposing the non-fibre foreign matters from seed cotton. | <ol style="list-style-type: none"> 1. Learning the measures to avoid non fibre matters. 2. Demonstrated to Identify/ classify the types of non-fibre matters. 3. Understanding the methods of segregating the non-fibre elements 4. Get awareness of the safe disposal of non-fiber contents. 5. Realizing the harms of non-fibre contents. | <p>Total: 8 hrs</p> <p>Theory: 1.5 hrs</p> <p>Practical : 6.5 hrs</p> | Some samples of foreign matters, Samples of seed cotton contaminate d of foreign matters | <p>Theory Class Room</p> <p>Practical Cotton factory. Storage place.</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|---|---|---|--|------------------------|---|
| LU-4: Feed cotton to suction pipes | The student will be able to 1. Identify the suction pipe. 2. Monitor the working of suction pipe. 3. Recognise the important role suction pipe. 4. Perform the feeding process through the suction pipe. | 1. Importance of suction pipe. 2. Familiarity with physical characteristics of suction pipe (around 11 inches size). 3. Actual working of the suction pipe along with manual labour to operate the pipe (3 labourers required in front of suction pipe for proper suction). 5. Know the appropriate man power for the working of suction pipe. | Total: 8 hrs Theory: 1.5 hrs Practical : 6.5 hrs | Pictures, graph, demo. | Theory Class Room Practical Cotton factory. Ginning Hall. |

3.5 Module 5: PRE CLEAN COTTON

Objective of the Module: The aim of this module is to give basic knowledge and procedure of pre cleaning cotton to the trainees

Duration: 26 hours Theory: 5 hours Practice: 21 hours

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|--|---|--|---|---|--|
| LU-1: Check pre cleaning machines | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Identify the functions and importance of pre-cleaner machines. 2. Perform the process of pre-cleaning. 3. Get the skill of cleaning of pre-cleaners. 4. Monitor the proper working of pre-cleaner machines. | <ol style="list-style-type: none"> 1. Familiarity with the shape and parts of pre-cleaning machine. 2. Understanding the types of pre- cleaners (Main, sub pre-cleaner). 3. Checking the sensitivity and operation of pre-cleaners. 4. Understanding the importance of regular cleaning of pre-clears. 5. Practical demonstrations of using and cleaning pre-cleaning machines. | <p>Total: 8 hrs</p> <p>Theory: 2 hrs</p> <p>Practical: 6 hrs</p> | <p>Pictures of parts, Charts, demo of pre cleaning.</p> | <p>Theory Class Room</p> <p>Practical Cotton Factory. Ginning Hall</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|---|--|---|--|---|--|
| LU-2: Clean screens after every one hour | The learner will be able to 1. Identify the condition of the various screens. 2. Recognise the importance of periodical cleaning. 3. Gain the understanding the equipment involved in processing. | 1. Awareness of different methods and importance of cleaning the screens. 2. Getting awareness of the different required elements of cleaning the screens. 3. Practical understanding about the loss in processing for not cleaning screens. 4. Actual cleaning the screens. | Total: 8 hrs Theory: 1 hrs Practical: 7 hrs | Pictures of cleaned screen Charts for demo of cleaning screens | Theory Class Room Practical Cotton Factory. Ginning Hall. |
| LU-3: Dispose off waste | The student will be able to 1. Recognise the proper way of disposable wastage of cotton. 2. Identify the usefulness of safe disposal of wastage. 3. Identify the variety of disposable elements. | 1. Understanding of different sign boards used to highlight the contamination free area. 2. Learn about the disposable wastage. 3. Demonstration of methods for safely disposing off the wastage to avoid remixing. 4. Learning harms of mixture of disposable wastage. | Total: 10 hrs Theory: 2 hrs Practical: 8 hrs | Pictures of dispose able wastage Charts for demo of disposing off Masks, Gloves | Theory Class Room Practical Ginning Hall of the cotton factory. |

3.6 Module 6 PERFORM GINNING

Objective of the Module: The aim of this module is to develop all the necessary knowledge and proficiency relating to actual performance of ginning among the learners

Duration: 48 hours Theory: 9.5 hours Practice: 38.5 hours

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|--|---|--|---|---|--|
| LU-1: Check sharpness of gin saws | The student will be able to 1. Identify the different methods of assessment. 2. Get awareness of the different parts of machine. 3. Recognise the importance of appropriate sharpness of gin saws. 4. Get skills of the periodical inspection of gin saws. | 1. Knowledge of different steps in ginning and sensitivity of operation of gin saws. 2. Practical understanding of ginning process i.e. feed rolls, pre-cleaning rolls, gin saws, ginning ribs, hulling ribs, hulling rills, nozzle. 3. Knowing the required sharpness, fatness (0.037 inch), teeth (around 7), size (12 to 16 inch) of ginning saws. 4. Learning sharpness of gin saws (after every 2000 bales) and replace when becomes lower than 1/8 of size. 5. Identification of maximum output of each gin saw (around 9 pound cotton lint per hour). | Total: 12 hrs Theory: 2 hrs Practical: 10 hrs | Pictures of ginning saws. Charts Physical Gin Saws and files for sharpening the saws. | Theory Class Room Practical Cotton Factory. Ginning Hall. |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|---|--|---|--|---|--|
| LU-2: Check gin speed | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Recognise the importance of ginning speed. 2. Get awareness of harms of inadequate ginning speed. 3. Understand the ginning process with particular reference to gin speed. | <ol style="list-style-type: none"> 1. Getting awareness of the demerits of violation of required ginning speed. 2. Be exposed the appropriate ginning speed (650 to 700 round per minute). 3. Learning of equipment for appropriate use in ginning process, i.e. pre-ginning machine, Rock catcher, Opener, inclined cleaner, feeder extractor cleaner, stick machine. | <p>Total: 12 hrs</p> <p>Theory: 2.5 hrs</p> <p>Practical: 9.5 hrs</p> | <p>Pictures of ginning speed. Charts. Revolution per minute (RPM) meter for checking the gin saw speed.</p> | <p>Theory Class Room</p> <p>Practical Ginning hall of Cotton Factory</p> |
| LU-3: Handle cotton seeds properly | <p>Trainee will be able to</p> <ol style="list-style-type: none"> 1. Identify the cotton seeds and learn the measures to avoid them from cuts. 2. Get skills and competency of handling the cotton seed. 3. Get sufficient awareness about the quality as well as life of parts. | <ol style="list-style-type: none"> 1. Familiarity with the role of lint cleaner and condenser from cuts. 2. Understanding of the use of appropriate size of ginning ribs to safe seeds 3. Practical know how for appropriate methods of seed handling. 4. Suitable place for putting seeds. | <p>Total: 12 hrs</p> <p>Theory: 2.5 hrs</p> <p>Practical: 9.5 hrs</p> | <p>Pictures. Charts</p> | <p>Theory Class Room</p> <p>Practical Cotton Factory. Ginning hall.</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|--|--|--|--|--|--|
| LU-4: Prevent seed cotton from extreme weather conditions | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Get awareness about the hazards of extreme weather. 2. Identify the required temperature for seed cotton. 3. Recognise the different methods to prevent from extreme weather. | <ol style="list-style-type: none"> 1. Identification of different forms of cotton (1-seed cotton, 2-cotton seed, 3-cotton lint). 2. Learn about the suitable temperature for seed cotton. 3. Practical knowledge of and impact of extreme weather on seed cotton. | <p>Total: 12 hrs</p> <p>Theory: 2.5 hrs</p> <p>Practical: 9.5 hrs</p> | Pictorial expressions of various forms of cotton as affected due to extreme weather. | <p>Theory Class Room</p> <p>Practical Cotton Factory. Storage place.</p> |

3.7 Module 7 PERFORM PRESSING

Objective of the Module: The aim of this module is to develop the basic knowledge, skill and competency among the trainees regarding pressing

Duration: 58 hours **Theory:** 12 hours **Practice:** 46 hours

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|-------------------------------------|---|--|--|--|--|
| LU-1: Observe moisture meter | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Recognise the importance of moisture meter. 2. Apply the moisture meter. 3. Get awareness of the hazards of moisture. 4. Recognise the required standards of moisture presence. | <ol style="list-style-type: none"> 1. Understanding of various sources of moisture. 2. Actual application of moisture meter. 3. Learning different measures i.e. use of pilots, etc. to avoid moisture. | <p>Total: 12 hrs</p> <p>Theory: 2.5 hrs</p> <p>Practical: 9.5 hrs</p> | <p>Pictures of moisture meter, Demo. Moisture meter.</p> | <p>Theory Class Room</p> <p>Practical Cotton Factory</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|--------------------------------------|---|--|--|---|---|
| LU-2: Prepare proper packing | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Recognise the different methods of packing. 2. Get the information about packing material. 3. Recognise the frequently used method of using steel wire for packing. 4. Identify the dangers of inappropriate packing. 5. Get the awareness of the lot-wise packing of cotton lint. | <ol style="list-style-type: none"> 1. Getting familiarity with the packing equipment. 2. Application and demonstration of suitable packing skills and techniques. 3. Awareness of packing process. 4. Management of various lots of cotton lint. | <p>Total: 12 hrs</p> <p>Theory: 2.5 hrs</p> <p>Practical: 9.5 hrs</p> | <p>Pictures, Graph, Demo. Packing material.</p> | <p>Theory Class Room</p> <p>Practical Cotton Factory. Ginning Hall.</p> |
| LU-3: Apply stamps and labels | <p>Trainee will be able to</p> <ol style="list-style-type: none"> 1. Recognise the importance of labelling and stamping. 2. Get the skills of allotting unique numbers. 3. Identify the size and position of labels. | <ol style="list-style-type: none"> 1. Getting the familiarity about factory registration number (which is allotted by the provincial government e.g. MLTP243), variety name, Lot number, bail number. 2. Identifying the structure of lot number which consists of 100 bales. 3. Practical procedure of unique labelling so as to identify at the national level. | <p>Total: 10 hrs</p> <p>Theory: 2 hrs</p> <p>Practical: 8 hrs</p> | <p>Pictures, Graph. Demo.</p> | <p>Theory Class Room</p> <p>Practical Cotton Factory. Ginning Hall.</p> |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|---|---|---|---|---|---|
| LU-4: Weigh bales of cotton lint | The student will be able to 1. Identify the variety of and working weighing machines. 2. Recognise the methods of exposing the weights of each bale. 3. Perform the procedure of Kaatla (specific deduction) and identify its objectives. | 1. Understanding all the weighing process. 2. Getting skill of weighing the bales. 3. Familiarity with the importance, selection criteria and methodology of Katla (special type of deduction). | Total: 8 hrs Theory: 2 hrs Practical: 6 hrs | Pictures of weighing machine, Operating charts. | Theory Class Room Practical Cotton Factory |
| LU-5: Make proper stacking | The student will be able to 1. Perform the methods of stacking. 2. Recognise the different anti-moisture measures while stacking. 3. Identify the importance of stacking in the sequence of serial number. | 1. Understanding the importance of staking. 2. Getting the practical skill of appropriate staking. 3. Learn the arrangement of lots in stacking. | Total: 8 hrs Theory: 1.5 hrs Practical: 6.5 hrs | Pictures, Demo, | Theory Class Room Practical Cotton Factory |

| Learning Unit | Learning Outcomes | Learning Elements | Duration | Materials Required | Learning Place |
|-------------------------------|---|--|---|--|--|
| LU-6: Maintain records | <p>The student will be able to</p> <ol style="list-style-type: none"> 1. Identify the importance of maintaining lot wise record. 2. Perform the documentary handling of all transactions. 3. Perform the process of record keeping. 4. Perform how to produce periodical summary statistics of the flow. | <ol style="list-style-type: none"> 1. Understanding the importance of record of various steps of the process. 2. Getting the practical skills and competency of record keeping. 3. Have introduction of various ledgers, journals, etc. | <p>Total: 8 hrs</p> <p>Theory: 1.5 hrs</p> <p>Practical: 6.5 hrs</p> | Charts, Pressing and ginning registers. Weight note. | <p>Theory Class Room</p> <p>Practical Cotton Factory</p> |

4. Assessment Guidelines

4.1 Difference between sessional and final assessment

a) Sessional Assessment

The internal (teacher of the said course) is responsible to assess the student class performance regarding class attendance, assignments (oral & written), practical demonstration and his attitude as well.

b) Final Assessment

The external body is responsible to supervise the final assessment of the students through the examination practically as well as theoretically.

4.2 Methods of assessment

For the course of “cotton processing” the methods of assessment are classified into two groups:

a) Direct assessment

The direct method is an effective way of assessment of cotton processors and most advisable assessment to observe the candidates while doing the practical work. The examples of direct assessment are:

- Work performance (e.g, see as if the students are taking interest by raising questions)
- Demonstration (e.g, the learner would act in the work field in the way he is trained)

- Presentation (e.g the trainee can present the work both theoretically as well as practically)
- Direct questioning (e.g individuals are questions regarding various learning elements)
- Paper based tests (e.g an oral or verbal test may be conducted in different sessions)

b) Indirect assessment

The indirect method of assessment is an approach that evidence for the performance is gained indirectly. The examples of indirect assessments are:

- Work products (e.g, the candidates can display the actual cotton processing in a specific stage of processing by following all techniques and tools taught to him. A comparison of competency can be made of various cotton processor)
- Workplace documents (e.g, various assignments can be given in which pictorial expressions can be displayed to evaluate the level of understanding of the candidates.

The application of indirect assessment is the secondary choice, because the work performance is not watched individually and it does not guarantees that the work product is carried out by the individual who is going to be assessed or by someone else.

4.3 Principles of assessment

An assessment programme should be based on the five principles each of which has specific meaning relevant to the course:

Fairness: It means that there should be no advantage or disadvantage for the trainees to be assessed. The candidates having prior information should not be preferred to those who do not have prior information. Each candidate must feel that he is being treated in the same way as of his/her fellows.

Validity: The principle of validity exposes that a valid assessment assesses what it claims to assess. For example, if cotton processing ability is assessed and certified, the assessment should involve a performance criterion which is directly related to the some specific module of cotton processing activity.

Reliability: It shows that the assessment is consistent and reproducible. For instance, the similar work performance of checking moisture or diseased ratio as assessed by some particular assessor is expected to be assessed by the other assessors during other period of time, and there should not be substantial difference of assessment result.

Flexibility: The principle of flexibility means that the assessor should be flexible regarding the assessment methods. Some learners are comfortable in one way of assessment while others respond better if the assessment pattern is changed. Therefore, various options should be available to assess the trainee. For example, the assessor evaluates the candidates through different alternative methods of performance if a learner does not perform better in one method of output.

Continuity: The principle of continuity explains that the assessment criteria should be continuous with respect the module structure of the course. Within a single module and between two modules, there is regularity in the assessment process. For example, firstly, assess the trainees regarding performing ginning and pressing. The presence of gap in the assessment across various learning units and learning modules cannot produce effective cotton processor and selectors.

4.4 Suggestion for Sessional Assessment

The following suggestions are given for the sessional assessment of the students:

1. According to curricula 80 % marks must be given on the basis of practical performance
2. A specific weight age must be given on the basis of class participation, assignments and quiz tests, to create the self motivation of the trainees.
3. The assessment process should be carried out periodically after each learning unit to evaluate the understanding of the students.

4.5 Suggestion for 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 final theoretical assessment shall consist of one 3-hour paper, consisting of multiple choice and short answer questions, covering all modules. Additionally, there should be some sort of distinction certification for the extra ordinary performing students

The module-wise assessment scheme is given in the table below:

MODULE 1

| | Assessments based on | | | | Proportion | |
|---|--|---------------|---|---------------|------------|-----------|
| | Theory | Time required | Practical | Time required | Theory | Practical |
| LU-1: Weigh properly on weighing machine | Trainee will be asked for: 1. The types of weighing machines, i.e. Weigh Bridge (a. Manual, b. Electronic), Bora weighing scale. 2. The weighing procedure of each weighing machine. 3. The limitations of each weighing machine. 4. The calibration of each weighing | | Trainee will be able to: 1. Identify the shape and design of weighing machines. 2. Demonstrate to distinguish the variety of weighing machine. 3. Explain the procedure of weighing mechanism and system. 4. Do the practical understanding for the calibration of each weighing machine for | | 2 hrs | 8 hrs |

| | | | | | | |
|---|---|--|---|--|-------|-------|
| | system. | | proper work. 5. Get the skill and competency of proper weighing as for instance the system of gross weighing and net weighing (Loaded truck- Empty truck= net weight). | | | |
| LU-2: Issue receipts of seed cotton delivered in the factory | <ol style="list-style-type: none"> 1. The typical receipts of cotton factory showing truck number, factory serial number, quality/variety of seed cotton and name of supplier. 2. The distribution and purpose of various copies of receipts. 3. The skills of issuing receipts by keeping and record of counter foil. | | <ol style="list-style-type: none"> 1. Get the awareness of the process of issuing receipts. 2. Perform practical to avoid errors and maintain transparency in the issuance of factory receipts. 3. Get information of systematic chain in the factory process. 4. Demonstrate for the final disposal of the different copies of receipts. | | 2 hrs | 6 hrs |
| LU-3: Make payments of delivered seed cotton | <ol style="list-style-type: none"> 1. The procedural steps of payment i.e. adhoc payment which is around 70 to 80 % of the total, net payment, etc. 2. Performing the various payment systems (cash, bank draft or cheques) of the factory. 3. The different objectives of adhoc payment. | | <ol style="list-style-type: none"> 1. Get awareness about various modes of payment. 2. Get knowledge and skill of procedural requirements for payments in the factory. 3. Demonstrate the different modes of payments. 4. Identify the standard way of writing crossed cheques. | | 1 hrs | 5 hrs |

| | | | | | | |
|---|--|--|--|--|---------|---------|
| LU-4: Maintain record of seed cotton and respective payments | <ol style="list-style-type: none"> 1. Maintaining the manual record of arrival and payment in a register. 2. The skills of record keeping in specific files. 3. The adhoc phase and its record keeping. 4. Maintaining the record in Excel Sheets of computer. | | <ol style="list-style-type: none"> 1. Identify the various methods/stages of record keeping. 2. Identify the journal, ledger & folio's. 3. Demonstrate the journalising, posting and folioing. 4. Do the practical revelation of constructing the multiple accounts in the ledger. 5. Get the Information of consolidated statement of several accounts. 6. Demonstrate the record (manual as well as computerized) and file maintaining in reasonable sequence in different categories. | | 1.5 hrs | 6.5 hrs |
|---|--|--|--|--|---------|---------|

MODULE 2

| | Assessments based on | | | | Proportion | |
|-----------------------------------|--|---------------|--|---------------|------------|-----------|
| | Theory | Time required | Practical | Time required | Theory | Practical |
| LU-1: Check moisture ratio | Trainee will be asked for: <ol style="list-style-type: none"> 1. Examining the presence of moisture contents in the seed cotton. 2. The application of moisture assessing equipment. 3. Recognizing the configuration of | | Trainee will be able to: <ol style="list-style-type: none"> 1. Identify the various sources of moisture. 2. Get the practical knowledge of various methods of moisture checking. 3. Get the Information of required percentage of moisture (7.5 to 8%) | | 2.5 hrs | 9.5 hrs |

| | | | | | | |
|--|--|--|--|--|-------|-------|
| | <p>moister ratio in the seed cotton.</p> <p>4. The various measures to minimize the moisture.</p> | | <p>4. Recognize the different methods of calculations of availability of moisture in seed cotton.</p> <p>5. Get the awareness of harms of higher/lower moisture ratio.</p> | | | |
| LU-2: Check diseased cotton ratio | <p>1. Identification of the diseased and healthy cotton.</p> <p>2. Calculating the percentage of diseased cotton in the heap of seed cotton.</p> <p>3. Elaborate the merits and demerits of classification of cotton.</p> | | <p>1. Learn the optimal ways for checking the diseased cotton ratio.</p> <p>2. Visualize awareness of different categories of cotton.</p> <p>3. Recognize the importance of classification.</p> <p>4. Understand the harms of diseased cotton.</p> <p>5. Demonstrate that how to calculate the diseased cotton ratio.</p> | | 2 hrs | 8 hrs |
| LU-3: Check non fibre foreign matter in Seed Cotton | <p>1. Identifying the variety of frequently contaminated non fibre elements.</p> <p>2. The segregation of non fibre matters.</p> <p>3. Performing how to apply the different equipments i.e. Dandari, Khillari, etc. used for checking/separation of non fibre elements.</p> | | <p>1. Get recognition of non-fibre matters.</p> <p>2. Use the different equipments.</p> <p>3. Get awareness of placing separate drums for non fibre contents.</p> <p>4. Practice the knowledge of the harm of non-fibre elements to the final product.</p> <p>5. Demonstrate for the classification/ identification of non fibre elements.</p> | | 2 hrs | 8 hrs |

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|--|--|--|--|--|----------------|----------------|
| <p>LU-4: Weigh trash percentage</p> | <p>1. Identification and classification of trash contents. 2. calculation of the trash percentage. 3. The skills of various exemption percentages of trash with respect to area (around 2.5 % in Multan)</p> | | <p>1. Get a brief knowledge of appropriate trash percentage. 2. Practical learn for the identification of trash. 3. Identify the ways and means to calculate the trash percentage. 4. Understand the expected harms of inappropriate trash ratio. 5. Demonstrate of the tables of various trash percentages.</p> | | <p>2.5 hrs</p> | <p>9.5 hrs</p> |
| <p>LU-5: Maintain Record of complete inspection</p> | <p>1. The net weighing procedure and thus maintain record for total payment. 2. Segregating the presence of moisture, diseased cotton and trash in the record keeping. 3. Identify the various thresholds of contamination, diseased cotton and trash. 4. Performing the record keeping of inspection in computers along with pictorial expressions.</p> | | <p>1. Understand various methods of maintaining record. 2. Get awareness of moisture presence and moisture ratio. 3. Learn for maintaining the record of net weight. 4. Practically demonstrate the physical and computerized record keeping of complete inspection.</p> | | <p>3 hrs</p> | <p>13 hrs</p> |

MODULE 3

| | Assessments based on | | | | Proportion | |
|-------------------------|---|---------------|---|---------------|------------|-----------|
| | Theory | Time required | Practical | Time required | Theory | Practical |
| LU-1: Grade Seed Cotton | <p>Trainee will be asked for:</p> <ol style="list-style-type: none"> 1. The multiple aspects i.e. colour, contamination ratio, trash ratio, diseased cotton ratio, shells, etc. for the grading of cotton. 2. The skills of appropriate uses of different grades of cotton. 3. Identify the grade wise deduction procedure to maintain quality. | | <p>Trainee will be able to:</p> <ol style="list-style-type: none"> 1. Recognize the Methods of grading cotton. 2. Get familiarization of factors of grading cotton, colour (Heo, Lightness, Chroma); trash (Large leaf, Pepper leaf), preparation. 3. Maintain the scaling of various grades of cotton (>80% is good cotton, <80% is low cotton) 4. Understand the benefits of grading seed cotton i.e 2nd grade is most suitable for making fat thread. 5. Demonstrate the universal cotton standards (1) Good Middling G.M., (2) Strick Middling, S.M. (3) Middling, M., (4) Strick Low Middling, S.L.M. (5) Low Middling, (6) Strick Good Ordinary, S.G.O. (7) Good Ordinary, G.O, (8) Below Good Ordinary, B.G.O. 6. Learn the multiple colors of cotton as white, plus, light gray, gray, light spotted, spotted, tinged & yellow stained. | | 4 hrs | 16 hrs |

| | | | | | | |
|--|--|--|---|--|-------|--------|
| <p>LU-2: Make grade wise heaps of seed cotton</p> | <p>1. The skills of grade wise heaping of cotton. 2. Identify the use of each class of cotton. 3. Recognise the usefulness of each grade of cotton.</p> | | <p>1. Get awareness regarding purposes and importance of making heaps of seed cotton. 2. Get recognition of variety/classes of heaps, i.e. 1st, 2nd, 3rd, 4th, 5th and their respective required criteria. 3. Do the demonstration of all elements taken into consideration for grading of cotton. 4. Do the demonstration of grade wise heaping .</p> | | 4 hrs | 12 hrs |
| <p>LU-3: Selection of platform for heaps</p> | <p>1. Identify the all suitable place for making heaps. 2. Identify the possible contaminations in heap i.e. jute, suttli, plastic cord, etc. of non cotton bags. 3. Adopt the different methods for avoid contamination from outsides and other abnormalities, i.e. weather, hazards, etc</p> | | <p>1. Understand the importance of the suitable place for making heaps. 2. Understand the harms and possible addition contamination in making heaps 3. Get familiarization of demerits of abnormalities. 4. Learn alternative methods for making heaps with out contamination .</p> | | 4 hrs | 12 hrs |
| <p>LU-4: Maintain records of graded seed cotton</p> | <p>1. The record keeping of graded seed cotton. 2. The skills of heap-wise grading record. 3. Avoid the inappropriate use of grades for optimal output. 4. Maintain the record of</p> | | <p>1. Get Skills of maintaining grading record of cotton. 2. Learn the criteria for heaping as well as grading of cotton. 3. Recognize the importance of record to avoid grading mishaps.</p> | | 3 hrs | 9 hrs |

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|--|-----------------------|--|--|--|--|--|
| | grade wise deduction. | | 4. Learn suitability between type of grades and product. | | | |
|--|-----------------------|--|--|--|--|--|

MODULE 4

| | Assessments based on | | | | Proportion | |
|--------------------------------------|---|---------------|---|---------------|------------|-----------|
| | Theory | Time required | Practical | Time required | Theory | Practical |
| LU-1: Spread cotton | <p>Trainee will be asked for:</p> <ol style="list-style-type: none"> 1. The importance of spreading cotton. 2. The selection of appropriate place for cotton spreading. 3. Application of the various equipments used for cotton spreading. | | <p>Trainee will be able to:</p> <ol style="list-style-type: none"> 1. Select of the place for cotton spreading (around 6 inches higher cemented/ paved place than normal place). 2. Learn the significance of the appropriate place. 3. Get the knowledge of tools required for spreading the cotton. 4. Get familiarization of the application of various tools for spreading the cotton. | | 2 hrs | 8 hrs |
| LU-2: Let the seed cotton dry | <ol style="list-style-type: none"> 1. The usefulness of dry cotton. 2. Identify the required level of drying cotton. 3. Identify the secure/ specific place for drying cotton. 4. Performing the different techniques to make the seed cotton dry. 5. The required level of drying cotton. | | <ol style="list-style-type: none"> 1. Learn about the methods for drying cotton (manual which is frequently used method, dryer). i.e. natural, artificial method. 2. Get the knowledge of required level of drying. 3. Note the appropriate timing and place for drying cotton. 4. Know the methods of equipped labour for drying cotton. 5. Get know how to identify the dry cotton. | | 2 hrs | 10 hrs |

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| <p>LU-3: Pick non fibre foreign matters</p> | <ol style="list-style-type: none"> 1. The variety of non fibre foreign matters. 2. Detection of the non-fibre elements in the seed cotton. 3. Perform the various methods for disposing the non-fibre foreign matters from seed cotton. | | <ol style="list-style-type: none"> 1. Learn the measures to avoid non fibre matters. 2. Demonstrate to Identify/ classify the types of non-fibre matters. 3. Understand the methods of segregating the non-fibre elements 4. Get awareness of the safe disposal of non-fiber contents. 5. Realize the harms of non-fibre contents. | | 1.5 hrs | 6.5 hrs |
| <p>LU-4: Feed cotton to suction pipes</p> | <ol style="list-style-type: none"> 1. Identify the suction pipe. 2. Monitor the working of suction pipe. 3. Recognise the important role suction pipe. 4. Perform the feeding process through the suction pipe. | | <ol style="list-style-type: none"> 1. Recognize the importance of suction pipe. 2. Get familiarity with physical characteristics of suction pipe (around 11 inches size). 3. Recognize the actual working of the suction pipe along with manual labour to operate the pipe (3 labourers required in front of suction pipe for proper suction). 4. Know the appropriate man power for the working of suction pipe. | | | |

MODULE 5

| | Assessments based on | | | | Proportion | |
|---|---|---------------|--|---------------|------------|-----------|
| | Theory | Time required | Practical | Time required | Theory | Practical |
| LU-1: Check pre cleaning machines | Trainee will be asked for: <ol style="list-style-type: none"> 1. The functions and importance of pre-cleaner machines. 2. Perform the process of pre-cleaning. 3. The skills of cleaning of pre-cleaners. 4. Monitor the proper working of pre-cleaner machines. | | Trainee will be able to: <ol style="list-style-type: none"> 1. Get familiarity with the shape and parts of pre-cleaning machine. 2. Understand the types of pre-cleaners (Main, sub pre-cleaner). 3. Check the sensitivity and operation of pre-cleaners. 4. Understand the importance of regular cleaning of pre-clears. 5. Practically demonstrate the using and cleaning pre-cleaning machines. | | 2 hrs | 6 hrs |
| LU-2: Clean screens after every one hour | <ol style="list-style-type: none"> 1. Identify the condition of the various screens. 2. Recognition the importance of periodical cleaning. 3. The understanding of the equipment involved in processing. | | <ol style="list-style-type: none"> 1. Get awareness of different methods and importance of cleaning the screens. 2. Get awareness of the different required elements of cleaning the screens. 3. Get Practical understanding about the loss in processing for not cleaning screens. 4. Understand the actual cleaning the screens. | | 1 hrs | 7 hrs |
| LU-3: Dispose off waste | <ol style="list-style-type: none"> 1. Identify the proper way of disposable wastage of cotton. 2. The usefulness of safe disposal of wastage. 3. Identify the variety of disposable elements. | | <ol style="list-style-type: none"> 1. Understand the different sign boards used to highlight the contamination free area. 2. Learn about the disposable wastage. 3. Demonstrate the methods for safely disposing off the wastage to avoid remixing. 4. Learn harms of mixture of disposable wastage. | | 2 hrs | 8 hrs |

MODULE 6

| | Assessments based on | | | | Proportion | |
|--|---|---------------|---|---------------|------------|-----------|
| | Theory | Time required | Practical | Time required | Theory | Practical |
| LU-1: Check sharpness of gin saws | <p>Trainee will be asked for:</p> <ol style="list-style-type: none"> 1. The different methods of assessment. 2. Awareness of the different parts of machine. 3. The importance of appropriate sharpness of gin saws. 4. Skills of the periodical inspection of gin saws. | | <p>Trainee will be able to:</p> <ol style="list-style-type: none"> 1. Get the knowledge of different steps in ginning and sensitivity of operation of gin saws. 2. Get practical understanding of ginning process i.e. feed rolls, pre-cleaning rolls, gin saws, ginning ribs, hulling ribs, hulling rills, nozzle. 3. Know the required sharpness, fatness (0.037 inch), teeth (around 7), size (12 to16 inch) of ginning saws. 4. Learn sharpness of gin saws (after every 2000 bales) and replace when becomes lower than 1/8 of size. 5. Identify the maximum output of each gin saw (around 9 pound cotton lint per hour). | | 2 hrs | 10 hrs |
| LU-2: Check gin speed | <ol style="list-style-type: none"> 1. The importance of ginning speed. 2. The awareness of harms of inadequate ginning speed. 3. Understanding the ginning process with particular reference to gin speed. | | <ol style="list-style-type: none"> 1. Get awareness of the demerits of violation of required ginning speed. 2. Expose the appropriate ginning speed (650 to 700 round per minute). 3. Learn the equipment for appropriate use in ginning process, i.e. pre-ginning machine, Rock catcher, Opener, inclined cleaner, feeder extractor cleaner, stick machine. | | 2.5 hrs | 9.5 hrs |

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| LU-3: Handle cotton seeds properly | <ol style="list-style-type: none"> 1. Identify the cotton seeds and learn the measures to avoid them from cuts. 2. The skills and competency of handling the cotton seed. 3. The awareness about the quality as well as life of parts. | | <ol style="list-style-type: none"> 1. Get familiarity with the role of lint cleaner and condenser from cuts. 2. Understand the use of appropriate size of ginning ribs to safe seeds. 3. Get practical know how for appropriate methods of seed handling. 4. Select suitable place for putting seeds. | | 2.5 hrs | 9.5 hrs |
| LU-4: Prevent seed cotton from extreme weather conditions | <ol style="list-style-type: none"> 1. The awareness about the hazards of extreme weather. 2. Identify the required temperature for seed cotton. 3. Recognise the different methods to prevent from extreme weather. | | <ol style="list-style-type: none"> 1. Identify the different forms of cotton (1-seed cotton, 2-cotton seed, 3-cotton lint). 2. Learn about the suitable temperature for seed cotton. 3. Get practical knowledge of and impact of extreme weather on seed cotton. | | 2.5 hrs | 9.5 hrs |

MODULE 7

| | Assessments based on | | | | Proportion | |
|--|--|---------------|---|---------------|------------|-----------|
| | Theory | Time required | Practical | Time required | Theory | Practical |
| LU-1: Observe moisture meter | Trainee will be asked for: <ol style="list-style-type: none"> 1.The importance of moisture meter. 2. Application of the moisture meter. 3. Awareness of the hazards of moisture. 4. Recognise the required standards of | | Trainee will be able to: <ol style="list-style-type: none"> 1. Understand the various sources of moisture. 2. Practically perform the actual application of moisture meter. 3. Learn different measures i.e. use of pilots, etc. to avoid moisture. | | 2.5 hrs | 9.5 hrs |

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| | moisture presence. | | | | | |
| LU-2: | <ol style="list-style-type: none"> 1. The different methods of packing. 2. The information about packing material. 3. The frequently used method of using steel wire for packing. 4. The dangers of inappropriate packing. 5. The awareness of the lot-wise packing of cotton lint. | | <ol style="list-style-type: none"> 1. Get familiarity with the packing equipment. 2. Apply and demonstrate the suitable packing skills and techniques. 3. Get awareness of packing process. 4. Do the management of various lots of cotton lint. | | 2.5 hrs | 9.5 hrs |
| LU-3: Apply stamps and labels | <ol style="list-style-type: none"> 1. The importance of labelling and stamping. 2. The skills of allotting unique numbers. 3. Identify the size and position of labels. | | <ol style="list-style-type: none"> 1. Get the familiarity about factory registration number (which is allotted by the provincial government e.g. MLTP243), variety name, Lot number, bail number. 2. Identify the structure of lot number which consists of 100 bales. 3. Perform practical procedure of unique labelling so as to identify at the national level. | | 2 hrs | 8 hrs |
| LU-4: Weigh bales of cotton lint | <ol style="list-style-type: none"> 1. Identify the variety of and working weighing machines. 2. Recognise the methods of exposing the weights of each bale. 3. Perform the procedure of Kaatla (specific deduction) and identify its objectives. | | <ol style="list-style-type: none"> 1. Understand all the weighing process. 2. Get skill of weighing the bales. 3. Get familiarity with the importance, selection criteria and methodology of Katla (special type of deduction). | | 2 hrs | 6 hrs |

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| LU-5: Make proper stacking | <ol style="list-style-type: none"> 1. Perform the methods of stacking. 2. Recognise the different anti-moisture measures while stacking. 3. The importance of stacking in the sequence of serial number. | | <ol style="list-style-type: none"> 1. Understand the importance of staking. 2. Get the practical skill of appropriate staking. <p>Learn the arrangement of lots in stacking.</p> | | 1.5 hrs | 6.5 hrs |
| LU-6: Maintain records | <ol style="list-style-type: none"> 1. The importance of maintaining lot wise record. 2. Perform the documentary handling of all transactions. 3. Perform the process of record keeping. 4. Perform how to produce periodical summary statistics of the flow. | | <ol style="list-style-type: none"> 1. Understand the importance of record of various steps of the process. 2. Get the practical skills and competency of record keeping. 3. Have introduction of various ledgers, journals, etc. | | 1.5 hrs | 6.5 hrs |

4.6 Assessment Team

It is very important to have a good expert of people who are assessing the performance and competency of the candidate in each module of the course. The team should include both internal and external assessors who are fully equipped with the diversified skills of assessment. The internal assessor is the instructor while external assessor may be a qualified person nominated by GIZ and or NAVTTC or organizing institute. The external assessor must be familiar of what has been taught to the trainees and what kind of practical demonstrations have been given. It would further be appropriate if the technical and curriculum expert of the trade are also include in the assessment team.

5. List of training material and equipment

- 30 pens
- 30 workbooks
- 30 handouts
- 30 charts of proper dress & foreign elements
- 30 pictures of diseased cotton & white cotton
- 30 Scarf
- 30 Gloves
- 30 Samples of yellowish cotton.
- 30 Sample of healthy cotton.
- 30 Pictures of cotton factory.
- 30 Samples of different varieties of cotton
- 30 chart showing various parts of cotton plants
- 30 Pictures of dirty cotton and white cotton
- 30 Charts for demo of proper place and foreign elements
- 30 Pictures of loaded cotton bags.
- 30 Demo charts of unloading.
- 30 Demo chart of safety measures
- 30 Pictures of non fiber matters.
- 30 Pictures of different weighing machine.
- 30 Coloured Charts, demo of proper weighing
- 30 Example of the calculation of net weights.
- 30 Physical presence of various weighing machines.
- 30 Charts for procedural chain
- 30 Flow chart of distribution of receipts
- 30 Samples of registers and cheques/drafts.

- 30 Samples of journal, ledger & folio.
- 30 Charts and demo of record keeping.
- 30 Actual files, registers and computers
- 30 Charts of moisture limits
- 30 Pictures, of diseased & healthy cotton
- 30 Classification Charts
- 30 Display sign boards for use of proper places for non fibre matters.
- 30 Pictures of trash.
- 30 Table of appropriate trash percentage.
- 30 Samples of seed cotton with and without moisture
- 30 Actual seed cotton of various grades.
- 30 Coloured Pictures of different grades and grading standards

30 Picture of seed cotton heaps.
30 Samples of non-cotton bags
30 Sample ledgers
30 Pictures of paved place.
30 Charts of Spreading cotton.
30 Samples of foreign matters,
30 Samples of seed cotton contaminated with foreign matters
30 Pictures of pre cleaning
30 Pictures of dispose able wastage
30 Charts for demo of disposing off
30 Pictures of ginning saws
30 Pictures of ginning speed
30 Pictures of various forms of cotton as affected due to extreme weather.
30 Pictures of moisture meter,
30 Perating charts of weighing machine

- Complete Ginning Plant
- Weighing machines

In case that the training center cannot provide a complete ginning plant and/or weighing machines by itself, for practical training purposes a cooperation with cotton processing companies has to be ensured.



National Vocational & Technical Training Commission (NAVTTTC)

5th Floor Evacuee Trust Complex Sector F-5/1,
Islamabad.

T +92 51 904404

F +92 51 904404

E info@navttc.org

I <http://www.navttc.org/>