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PINE NUTS PROCESSOR

Learner Guide

National Vocational Certificate Level 3

Version 1 - February 2020

NAVTTC

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Contents

Introduction

Welcome to your Learner's Guide for the *Pine Nuts Processor* Program. It will help you to complete the program and to go on to complete further study or go straight into employment.

The *Pine Nuts Processor* program is to engage young people with a program of development that will provide them with the knowledge, skills and understanding to start this career in Pakistan. The program has been developed to address specific issues, such as the national, regional and local cultures, the manpower availability within the country, and meeting and exceeding the needs and expectations of their customers.

The main elements of your learner's guide are:

- **Introduction:**
  - This includes a brief description of your guide and guidelines for you to use it effectively
- **Modules:**
  - The modules form the sections in your learner's guide
- **Learning Units:**
  - Learning Units are the main sections within each module
- **Learning outcomes**:
  - Learning outcomes of each learning units are taken from the curriculum document
- **Learning Elements:**
  - This is the main content of your learner's guide with detail of the knowledge and skills (practical activities, projects, assignments, practices etc.) you will require to achieve learning outcomes stated in the curriculum
  - This section will include examples, photographs and illustrations relating to each learning outcome
- **Summary of modules**:
  - This contains the summary of the modules that make up your learner's guide
- **Frequently asked questions**:
  - These have been added to provide further explanation and clarity on some of the difficult concepts and areas. This further helps you in preparing for your assessment.
- **Multiple choice questions for self-test**:
  - These are provided as an exercise at the end of your learner's guide to help you in preparing for your assessment.

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Module-8

Module 8: Extract Pine Nuts from Cones

Objectives: This Module covers the skills and knowledge required to prepare surface for placement of Pine nut cones after cutting, dry Pine nut cones for extraction of Pine nuts, all kinds of Pine nuts extraction techniques and how to reduce excessive moisture and remove foreign material from the extracted Pine nuts by using adequate personal protective equipment.

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU1. Prepare surface for placement of Pine nut cones	**Trainee should be able to:** • Identify the appropriate place for drying. • Smooth the surface with mud plaster (Lippai). • Ensure dryness of surface for placement of cones	• Identification of appropriate place for drying • Knowledge of the required temperature (24-29 degree Celsius) • Knowledge of the required duration for readiness of cone for extraction of pine nuts • Procedure for mud plastering • Knowledge of assessing dryness of the surface for placement of cones	Multi media Working equipment Hygrometer
LU2. Dry Pine nut cones for extraction	**Trainee should be able to:** • Select required tools/equipment for drying the nuts. • Adopt proper heating/Drying method. • Heat the Pine cones for extraction of Pine nuts as per SOP • Ensure the Pine Nut cones are dried.	• Identification of the required tools/equipment for drying the pine nut cones • Use of tools/equipment's for drying pine nut cones • Drying techniques of Pine nut cones • Heating procedure • Introduce modern techniques of drying the	Multi media Tools and equipment Heating instruments

		pine nut cones	
LU3. Separate Pine nuts from cones	**Trainee should be able to:** • Extract Pine nuts from opened cones. • Spread semi opened cones at perforated surface. • Beat cones with wooden stick to extract the Pine nuts. • Extract rest of the Pine nuts with the help of tools (wooden pointer/wooden hammer etc.) from semi opened cones, one by one correctly	• Identification and use of required tools for extraction of pine nuts. • Extraction techniques • Use of perforated surface for reduction of moisture from the semi opened cones • Beating techniques used for separating pine nuts from cones	Multi media Pine nuts extraction Tools Heating instruments
LU4. Reduce excessive moisture from Pine nuts	**Trainee will be able to:** • Spread Pine nuts in open air in thin layers to reduce excessive moisture • Shuffle the Pine nuts on regular intervals for Uniformity. • Ensure the dryness of Pine nuts.	• Understanding of spreading pine nuts in open air, uniformly, to reduce excessive moisture. • Moisture Judgment techniques and reshuffling of pine nuts on regular basis.	Multi media Shuffling tools Hygrometer

LU5. Remove Foreign Material (Impurities	**Trainee will be able to:** • Remove foreign material from Pine nuts with fan / blower (air treatment) • Remove foreign material from Pine nuts with the help of sieves. • Remove foreign material from Pine nuts manually. • Grade the Pine nuts according to their size and color	• Cleaning procedure for removing of foreign material from pine nuts: 1. Manually 2. Mechanically • Understanding of grading procedure.	Multi media Blower Sieves
LU6. Place the Pine nuts in Boxes	**Trainee will be able to:** • Identify the different grades of the Pine Nuts • Use appropriate boxes placing the Pine nuts. • Ensure the filled boxes are place at safe place. • Shift the Pine nuts for roasting.	• Describe Different Grades of Pine Nuts. • Describe storing techniques with required tools and equipment and ensuring health and safety.	Multi media Storing Boxes

Cone Drying and Nut Extraction Methods

Once cones are collected, they are generally transported to the village in large jute or burlap sacks and piled together. After some time, cones are spread over the ground and exposed to the sun to air dry. The harvesters try to dry the cones immediately in order to prevent mold development that results in seed deterioration.

Sun/air drying is the most common method of cone drying, however use of fire or coals to aid in drying has been reported on the rise. In some areas, cones are piled on rooftops to dry naturally in the sun. Some villagers bury the cones in meter-deep pits for some time and then move them to the open-air for drying. Similar method of cone drying is used in Gilgit, Pakistan as well.

Alternatively, some people store the cones inside a room and then expose them to the sun for drying. Some believe that cones stored in soil and/or shade for a period of time will cause resin to ooze out and allow the scales to open more quickly in the sun. The drying process is completed between 2 – 60 days by spreading the cones on dried ground exposed to air and sunlight. This drying process is slow and depends on the climatic situation. On average it takes 15 days for cones to dry in open air. In Afghanistan, under traditional drying procedures it takes about 20 days for the cones to open. Some harvesters heat the cones with fire in order to accelerate scale opening and seed release.

The modern, improved method of cone drying and nut extraction is through the use of cabinet driers, wherein the duration of time until seed extraction can be reduced and the quality of the nut is improved by reducing its moisture content. Cabinet driers expose the cones to a controlled amount of heat, while in traditional methods, cones are exposed to the sun or fire heat and the temperature is not controlled. Once cones are heated and dried, scales completely or partially open and nuts are extracted manually. Nuts are extracted by placing the cones in a sack and beating with a stick or over a hard surface. Cones that do not open their scales after the drying process are cut open with shears or clippers. During the extraction process, some seeds are damaged and wasted by striking and beating.

Based on scientific research, advanced methods of nut extraction have been introduced. The pinyon pine nuts in the US are extracted and deshelled using mechanized machinery. Although expensive, use of a cabinet drier is one of the best methods of nut extraction, wherein the seeds are extracted quickly and the quality of the nut is improved by reducing moisture content. Cabinet driers extract seeds by exposing the cones to a controlled amount of heat. While, in traditional methods, cones are exposed to sun or fire heat and the temperature is not controlled. Cone opening is quick at 55 - 60o C temperature in cabinet driers. Cabinet drying is considered the best drying mode based on time efficiency and consistency, however use of solar polyethylene drying tunnels may be suitable in achieving the required moisture content and significantly more resourceful and cost effective.

In some regions, local traders buy the cones from villagers and take care of manual processing. After seed extraction, nuts are roasted in their shell in order to improve flavor and shelf life. Roasting is done manually using gas or wood as a heating source, while in some areas it is done with sophisticated machinery. In domestic markets nuts are sold with shells and deshelling is usually done by hand.

Conclusions:

The traditional cone drying and nut extraction method, is ineffective and time consuming as well. Traditional cone drying and extraction not only reduces yield but also decrease quality of nuts. Likewise, nut extraction process is also not standard as well. The most common cone drying method is sun and air drying which is not very effective. Furthermore, manual seed extraction results in reduced yield. Cabinet drier is an effective method of cone drying and seed extraction. With the use of cabinet drier not only seeds are extracted quickly, but quality is improved by controlling seed moister as well.

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Module-9

Module 9: Perform Roasting of Pine Nuts with Shell

Objectives: This Module covers the skills and knowledge required to roast Pine nuts as per requirements, remove infected Pine nuts after roasting and pack roasted Pine nuts, as per instructions and properly transport the packed Pine nuts to the desired destination.

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU1. Arrange Tools for roasting of Pine Nuts	**Trainee will be able to:** • Identify the required tools and equipment for roasting Pine Nuts cones. • Clean and Store the Tools and equipment after use.	• Types of roasting tools • Use of tools • Suitability/appropriateness of tools • Sharpness techniques of tools.	Multi media Roasting equipment Cleaning material
LU2. Adopt Health and safety measures	**Trainee will be able to:** • Identify the hazardous at work place • Remove hazardous properly. • Wear the safety equipment accurately. • Ensure the work place is safe to wok.	• Knowledge of the required protective dress/ equipment. • Importance wear proper dress • Knowledge of cleaning materials and techniques	Multi media Safety equipment

LU3. Roast Pine nuts as per requirements	**Trainee will be able to:** • Select roasting equipment as per instructions. • Ensure the required temperature for roasting the Pine nuts. • Roast the Pine nuts as per requirement. • Clean roasting equipment after use. • Place/Store roasting equipment at designated point	• Types and use of roasting equipment of Pine nuts. • Roasting procedures and techniques. • Maintenance of roasting equipment.	Multi media Roasting tools Heating system Cleaning tools
LU4. Remove infected Pine nuts	**Trainee will be able to:** • Remove infected Pine nuts with fan / Air blower/ sieves as per SOP. • Manually remove infected Pine nuts	• Knowledge of infected pine nuts. • Use of fan/Air blower/sieves	Multi media Air blower and Sieves
LU5. Pack roasted Pine nuts as per requirement	**Trainee will be able to:** • Select packing material as per requirement • Weigh-out the roasted Pine nuts for packing • Pack the Pine nuts according to requirements • Make a record of the packed Pine nuts quantity.	• Knowledge of packing material. • Use of weight machine. • Understanding of packing procedure. • Knowledge of basic arithmetic operations • Inter conversion of weight scale.	Multi media Packing material Wight scale

LU6. Transport roasted Pine nuts to the desired destination	**Trainee will be able to:** • Select suitable transport means • Load the Pine nuts on selected transport as per instructions. • Dispatch Pine nuts to desired market	Knowledge of various packaging. • Use of safe loading/ unloading. • Means of transportations. • Knowledge of forward market linkages • Importance of value addition.	Multi media Loading tools/ equipment

Examples and Illustrations:

Removing infected Pine Nuts:

Infected Pine nuts are Manually removed through Sieve or using Fan Blower for Clean production.

STORAGE:

Pine nuts may be stored within the cones (before opening) or after separating the pine nuts from the cones. Pine nuts can be stored for years in-shell without becoming rancid. Cold storage can be used, either to prevent infestation in localities where insects are likely to be present in ordinary storage or to prevent insects damaging the nut products.

According to the Codex Alimentarius:

(i) For optimum storage conditions, store at approximately 1 °C (34 °F) with a relative humidity from 60% to 70%. In temperate countries, nuts in-shell and kernels may be stored in sound, dry warehouses at ambient temperatures.

(ii) Where nut products are stored under conditions in which they may become infested by insects and/or mites, appropriate methods of protection should be used regularly.

After extraction, Chilgoza nuts can be stored, however factors such as microorganisms, storage conditions, temperature, moisture, and gas composition can affect quality and durability of nuts. Seeds can become infested with different types of fungi especially during transportation and in normal open storage conditions. In order to prevent pine nut deterioration during storage (especially without shell), anti-oxidative coats are recommended. Also, with the use of edible coatings, pine nuts can be preserved from fungi attack and moisture content controlled

Temperature during storage and moisture content of nuts are other factors that challenge Chilgoza pine nut storage and durability. Under traditional processing and storage, Chilgoza nuts have high moisture content which usually leads to mold development, and decreased quality. Generally, Chilgoza pine nuts should be dried to a moisture content of 2-5 percent.

Because of the potential dangers they pose to the environmental and health, there are special storage requirements for waste and food. All businesses must store Food safely and securely. There are additional rules for special care.

Food Hygiene

Pine Nuts Processing businesses must ensure that Pine Nuts are correctly stored to comply with food hygiene requirements. For example, you must:

- observe temperature controls in all storage areas, including display cabinets
- store dried food off the floor
- observe use-by dates
- ensure all areas are clean
- avoid overloading refrigerated units - if they become too full, air doesn't circulate properly, causing food to deteriorate
- follow any storage instructions on food packaging

PACKAGING

The Packing materials used inside the package must be clean and of a quality such as to avoid causing any external or internal damage to the Pine nuts. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided that the printing or labeling has been done with non-toxic ink or glue. Packages must be free of all foreign matter.

TRANSPORT

The means of conveyance of the product should be adequate for the purpose intended and should be of such material and construction as will permit thorough cleaning, and should be so cleaned and maintained as not to constitute a source of contamination for the product.

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Module-10

Module 10: Perform Peeling of Pine Nuts for Kernel

Objectives: This Module covers the skills and knowledge required to perform peeling of Pine nuts for Kernels extractions, Dry Kernels for removing membrane, Roast Pine nuts for Kernel, Sort Kernels as per requirements and Perform Packing of Kernels

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU1. Perform peeling of Pine nuts for Kernels extractions	**Trainee will be able to:** • Soak roasted Pine nuts in warm water as per requirements • Remove shells (Peeling) of soaked Pine nuts correctly • Spread peeled Kernels on appropriate surface as per requirements to reduce moisture	• Peeling techniques manually/ mechanically. • Soaking procedure. • Spreading techniques for peeled kernels to reduce moisture.	Multi media Soaking and drying equipment
LU2. Dry Kernels for removing membrane	**Trainee will be able to:** • Spread the Kernels for drying to remove Kernel membrane. • Remove Kernel membrane by rubbing gently with a neat cloth. • Remove Kernel membrane with the help of blower	• Procedure for removing kernel membrane • Rubbing techniques for removal of kernel membrane. • Removal of kernel membrane with the help of machine.	Multi media Roasting tools Heating system Cleaning tools

LU3. Roast Pine nuts for Kernel	**Trainee will be able to:** • Select roasting equipment for Pine nuts. • Select Pine nuts for roasting for kernels. • Roast the Pine nuts, as per requirement. • Clean the roasting equipment. • Store the roasting equipment at designated point.	• Knowledge of Pine nuts roasting techniques for Kernels. • Types and uses of personal protective equipment • Maintenance of roasting equipment.	Multi media Roasting equipment Cleaning material
LU4. Sort Kernels as per requirements	**Trainee will be able to:** • Sort Kernels with the help of sieves for grading. • Separate the unhealthy Kernels manually • Separate the unhealthy Kernels with the help of machine.	• Describe different grades • Grading techniques of kernels	Multi media Air blower and Sieves
LU5. Perform Packing of Kernels	**Trainee will be able to:** • Select the packaging material as per requirement. • Pack the Kernels as per instructions • Make a record of weight and quantity of the Packed Pine nuts	• Knowledge of safe and hygienic packaging. • Describe packaging material and techniques	Multi media Packing material Wight scale

Examples and Illustrations:

Pine Nuts Kernels:

Once the Pine nuts are separated from the cone scales and fragments by sieves and cyclones. The pine nuts are then stored in-shell. Before shelling, in-shell pine nuts are soaked in water to increase elasticity and avoid kernel fractures. Shelling should avoid damaging the kernels.

There are two main methods of shelling: **Rotary-friction shelling and impact shelling**.

In the **rotary-friction method**, the pine nuts are placed between two hard surfaces that roll against the nuts and remove the shell. The distance between the two surfaces must be adjusted to crack the shell without damaging the kernel. For this reason, pine nuts need to be sized in order to get a uniform size lot.

In the **impact shelling method**, pine nuts do not need to be sized since they are cracked by impact against a hard surface. The latter method is more appropriate for soft-shell pine nuts. After shelling, pine nut kernels are separated from the shell by sieves and cyclones. Further processing consists of humidity standardization, polishing with sawdust and classification by size, wholeness and color, using electronic colorimeters.

Pine Nuts Kernels.

To remove Pine nuts shell, the nuts are soaked in water to make them softer. Wet pine nuts are classified by size and cracked with purpose-built machines. The kernels are cleaned and the skin is removed from the kernel.

For long term and/or market storage, application of an edible coating, use of fungicides, reduction of moisture content, controlled storage temperature and humidity and air-tight (hermetic) packaging is utilized.

Product specification

Quality.

The basic quality requirements for pine nuts are defined by several criteria:

- Pine nuts must be intact, sound, clean, sufficiently developed and with uniform Colour.
- Pine nuts must be free from pests, damages, moulds, rancidity and foreign smell or taste.
- Maximum moisture content: 7% per cent for Pinus gerardiana, 6% for Pinus pinea and 3.5% for all other pine nuts.

Specific pine nuts requirements are defined by the following criteria:

- Class — Pine nut classification is not specific but are classed as Class A, Class B and Class C according to allowed defects.
- Sizing — The European Union has not officially defined grading categories for pine nuts. The most frequently used grading classification, also by UNECE, uses the number of kernels per 100 g for eight different Pinus species.
- Sensory characteristics — In practice, quality and price are usually determined by the characteristics of pine nuts, combining taste, flavour, the look of the kernel and grade. There are some marketing efforts by producing countries to promote the taste of their own pine nuts as superior to others. Many attributes are used for this purpose, such as mild, strong, spicy, fine, creamy, or with a resinous flavour.

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Module-11

Module 11: Perform Handling & Storage

Objectives: This Module covers the skills and knowledge required to sort Pine nuts as per grading requirements (sizes and colors), pack Pine nuts as per instructions and properly transport the packed Pine nuts.

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU1. Sort Pine nuts as per grading	**Trainee will be able to:** • Sort Pine nuts according to size (A, B and C category). • Sort Pine nuts according to color (White, Brown and Black). • Remove infected Pine nuts from the lot.	• Types of Pine nuts packaging material. • Understanding of various sizes of pine nuts. • Understanding of various colors of pine nuts. • Understanding of various taste	Multi media Different types of Pine nuts
LU2. Pack Pine nuts as per requirements	**Trainee will be able to:** • Select packing material according to instructions • Measure the required weight of Pine Nuts • Fill the Pine nuts in the packing material	• Importance of packing material for Pine nuts. • Customers' requirements for packing of Pine nuts • Procedures for packing of pine nuts.	Multi media Packing materials Weighting scale
LU3. Develop record of quantity of Pine nuts	**Trainee will be able to:** • Develop the Stock Record Register sheet. • Count the number of packs according to the weight category. • Develop the record of the available stock.	• Describe the Stock register. • Procedure of making the record	Multi media Stock register

LU4. Transport Pine nuts to the desired destination	**Trainee will be able to:** • Select suitable transportation means. • Ensure safe Loading of Pine nuts on selected transport as per instructions. • Dispatch Pine nuts to the desired market	• Understanding of suitable transportation means. • Procedure for safe loading/unloading of pine nuts.	Multi media Loading / unloading tools
LU5. Ensure Safe Storage.	***Trainee will be able to:*** • Ensure the storage place is clean. • Ensure the storage place safe. • Ensure the required temperature and humidity level for storage. • Ensure the store is locked securely.	• Describe safe storing including Locking system and store humidity • Importance of safe storage	• Multi media • Store cleaning material • Locks

Illustration and Examples:

PACKAGING

According to the UNECE Standard DDP-12 concerning the marketing and commercial quality control of pine nut kernels, the kernels must be packed in such a way as to properly protect the produce. The materials used inside the package must be clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided that the printing or labeling has been done with non-toxic ink or glue. Packages must be free of all foreign matter.

Packaging

Pine nuts are packed in different types of bulk or retail packaging.

Pine nut kernels are typically packed in vacuum bags of different sizes from 1 to 12.5 kg, which are placed in cartons. Export packaging commonly includes two vacuum bags of 12.5 kg packed together in cartons, adding up to 25 kg in weight per box. Using vacuum bags helps to reduce the risk of oxidization and maintain freshness during shipping and storage.

Pine nuts should be kept in clean and ventilated storerooms, not infected with pests and without foreign smell, at a temperature not exceeding 20° C, far from sun light, with relative air humidity not exceeding 70%. This way, storage life of pine nuts is 12 months from the date of production. When packed in packages without vacuum, the expiration date is six months. In practice, many European importers require that the storage life of pin

Labelling

The name of the product must be shown on the label (‘pine nuts’ or ‘pine nuts kernels’, for example), together with the botanical name of the species (Pinus gerardiana, for example). It is common practice to state the class, size, crop year and best-before date on the label. Information about non-retail packaging must be given either on the packaging or in the accompanying documents.

Bulk packaging labels must contain the following information: name of the product; lot identification; name and address of the manufacturer, packer, distributor or importer; storage and transport instructions are very important due to the high oil content, which can negatively influence the quality of product if not handled properly. However, lot identification, and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark.

In the case of **retail packaging**, product labelling must be in compliance with the European Union Regulation on the provision of food information to consumers. This regulation defines nutrition labelling, origin labelling, allergen labelling and legibility (minimum font size for mandatory information) more clearly. This regulation lists nuts as products that may cause allergies or intolerances. However, pine nuts are considered to be seeds in the European Union for labelling purposes.

TRANSPORT

According to the Codex Alimentarius, the means of conveyance of the product should be adequate for the purpose intended and should be of such material and construction as will permit thorough cleaning, and should be so cleaned and maintained as not to constitute a source of contamination for the product.

STOCK REGISTER FORMAT

Stock Register:

Stock Register can be outline as document/file/software record that is employed for maintaining company's stock. It's based mostly upon live updated of addition of incoming stock (Purchase) and subtraction of issuance stock (Sale). It's a very important side for any business for Inventory management, preventing shortage drawback and maintaining regular supply of product. Managing Stock might be an integral part of managing an organization. Stock register is concept that is to keep company stock record it mostly filled or recorded manually.

There are many varieties of stock management however few strategies are normally used. Ordinarily used strategies are:

- Stock Management in Excel
- Manually Stock Register Book

The information provided in the stock ledger or stock register are as follows:

- Cost quantities; cost of each unit
- Unit quantities: number of units
- Date: date of which supply stated
- Name of Product
- Invoice or bill
- Issue
- Receipts
- Remarks

Stock ledger or stock register sometimes may contain maximum or minimum fields mostly the store ledgers or stock registers are used to track down the current transactions and stored items of the company.

Minimize the risks of goods storage

You must assess the risks posed by storing goods and materials, determine how likely they are to occur and take steps to minimize them.

You can reduce your risk of storing goods by:

- Marking all exit routes and keeping them clear
- Organizing storage areas and to allow people and vehicles - such as forklift trucks - to move goods safely
- Clearing up all spills immediately to reduce the risks of slips, trips and pollution
- Checking that shelving and racking units are safe and appropriate for the materials they hold
- Providing any personal protective equipment staff need to store or move materials and training them on how to use it
- Keeping the minimum amount of materials necessary in processing and production areas
- Taking unused materials back to storage areas rather than leaving them lying around
- Segregating any materials which could contaminate each other or be dangerous if stored close together
- Considering how you'll ensure the security of high-value goods
- using appropriate safety signage

Frequently Asked Questions

1. What is Competency Based Training (CBT) and how is it different from currently offered trainings in institutes?	Competency-based training (CBT) is an approach to vocational education and training that places emphasis on what a person can do in the workplace as a result of completing a program of training. Compared to conventional programs, the competency based training is not primarily content based; it rather focuses on the competence requirement of the envisaged job role. The whole qualification refers to certain industry standard criterion and is modularized in nature rather than being course oriented.
2. What is the passing criterion for CBT certificate?	You shall be required to be declared “Competent” in the summative assessment to attain the certificate.
3. What are the entry requirements for this course?	The entry requirement for this course is 8th Grade or equivalent.
4. How can I progress in my educational career after attaining this certificate?	You shall be eligible to take admission in the National Vocational Certificate Level-4 in Pine Nuts Processor. You shall be able to progress further to National Vocational Certificate Level-4 in Pine Nuts Processor Course; and take admission in a level-5, DAE or equivalent course (if applicable). In certain case, you may be required to attain an equivalence certificate from The Inter Board Committee of Chairmen (IBCC).
5. If I have the experience and skills mentioned in the competency standards, do I still need to attend the course to attain this certificate?	You can opt to take part in the Recognition of Prior Learning (RPL) program by contacting the relevant training institute and getting assessed by providing the required evidences.
6. What is the entry requirement for Recognition of Prior Learning program (RPL)?	There is no general entry requirement. The institute shall assess you, identify your competence gaps and offer you courses to cover the gaps; after which you can take up the final assessment.

7. Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)?	There are no age restrictions to enter this course or take up the Recognition of Prior Learning program
8. What is the duration of this course?	The duration of the course work is 1,510 hrs. (11 months)
9. What are the class timings?	The classes are normally offered 25 days a month from 08:00am to 01:30pm. These may vary according to the practices of certain institutes.
10. What is equivalence of this certificate with other qualifications?	As per the national vocational qualifications framework, the level-4 certificate is equivalent to Matriculation. The equivalence certificate can be obtained from The Inter Board Committee of Chairmen (IBCC).
11. What is the importance of this certificate in National and International job market?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTC website.
12. Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well?	You shall be able to take up jobs in the local or overseas construction companies in heavy machinery operator job profile.
13. What are possible career progressions in industry after attaining this certificate?	You shall be able to progress up to the level of supervisor after attaining sufficient experience, knowledge and skills during the job. Attaining additional relevant qualifications may aid your career advancement to even higher levels.
14. Is this certificate recognized by any competent authority in Pakistan?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). The official certificates shall be awarded by the relevant certificate awarding body.
15. Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training?	On-the-job training is not a requirement for final / summative assessment of this certificate. However, taking up on-the-job training after or during the course work may add your chances to get a job afterwards.

16. How much salary can I get on job after attaining this certificate?	The minimum wages announced by the Government of Pakistan in 2019 are PKR 17,500. This may vary in subsequent years and different regions of the country. Progressive employers may pay more than the mentioned amount. The heavy Machinery Operator normally earns 20,000 to 25,000 in the start.
17. Are there any alternative certificates which I can take up?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
18. What is the teaching language of this course?	The leaching language of this course is Urdu and English.
19. Is it possible to switch to other certificate programs during the course?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
20. What is the examination / assessment system in this program?	Competency based assessments are organized by training institutes during the course which serve the purpose of assessing the progress and preparedness of each student. Final / summative assessments are organized by the relevant qualification awarding bodies at the end of the certificate program. You shall be required to be declared “Competent” in the summative assessment to attain the certificate.
21. Does this certificate enable me to work as freelancer?	You can start your small business by purchasing your own heavy construction machine and can start earning 50,000 per month. You may need additional skills on entrepreneurship to support your initiative.

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