Syllabus for Cashew Nut Cultivation and Processing Assistant

Course Name	Cashew Nut Cultivation and Processing Assistant
Sector	Food processing
Course Code	FPT/2024/CCPA/400
Level	3
Occupation	Cashew Nut Cultivation and Processing Assistant
Job Description	The Cashew Nut Cultivation and Processing Assistant will be responsible for providing support in all aspects of cashew nut cultivation and processing operations. Duties include assisting with the cultivation process, such as planting, watering and harvesting cashew trees, as well as ensuring proper maintenance of the orchard. Additionally, the assistant will aid in processing cashew nuts through tasks such as shelling, sorting and packaging.
Course Duration	Total Duration 390 Hrs (T- 90, P-180, OJT-60 and ES-60)
Trainees' Entry Qualification	Grade 10 OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject OR 8th grade pass with 2 yrs relevant experience OR 5th grade pass with 5 years relevant experience 0R Previous relevant Qualification of NSQF Level 2 with one yr experience OR Previous relevant Qualification of NSQF Level 2.5 with 6 months experience
Trainers Qualification	Diploma/Certificate course in Food Technology with 1 year experience in the relevant field OR Class 10th pass with 3 years' experience in Cashew nut cultivation/ Processing unit

Structure of Course:

Module No.	Module name	Outcome	Compulsory/ Elective	Theory (Hrs)	Practical (Hrs)	OJT (Hrs.)	Total (Hrs) [Multiple of 30]
1	**Cashew nut varieties and market potential**	Identify Cashew nut Varieties, characteristics and market potential	Compulsory	10	20		30
2	**Cashew nut Cultivation and Quality Assurance**	Perform Cultivation of cashew using Good Agricultural practices (GAP) and best nursery practices (BNP)	Compulsory	20	40		60

Module No.	Module name	Outcome	Compulsory/ Elective	Theory (Hrs)	Practical (Hrs)	OJT (Hrs.)	Total (Hrs) [Multiple of 30]
3	**Pest & Disease management**	Implement an integrated approach Pest & Disease control that combines biological, cultural, physical and chemical control methods.	Compulsory	10	20		30
4	**Harvesting**	Perform harvesting, plucking and cutting of cashew apples from the trees	Compulsory	10	20		30
5	**Post-Harvest Processing**	Perform Post-Harvest Processing of cashew nut	Compulsory	10	20		30
6	**Grading, shorting, quality control and packaging**	Perform sorting, grading and packaging of cashew nut	Compulsory	20	40		60
7	**By-Products**	Demonstrate uses of various by-products from cashew manufacturing process	Compulsory	10	20		30
8	**OJT**	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	Compulsory	-	-	60	6**0**
9	**Employability Skill**	As per guided curriculum	Compulsory	60	-	-	6**0**
		TOTAL		**150**	**180**	**60**	**390**

SYLLABUS:

Module No. 1: Cashew nut varieties and market potential

Outcome: Identify Cashew nut Varieties, characteristics and market potential

Theory Content:

1.1 Varieties of Cashew Nuts (Traditional varieties, Improved varieties, regional variations, commercially cultivated varieties)
1.2 Structure of Cashew Nut.
1.3 Explain the hard, outer shell of the cashew nut, including its composition and protective function.
1.4 Describe the edible part of the cashew nut, including its shape, size, and color variations.
1.5 Elaborate the internal structure of the cashew nut, such as the seed, endosperm, and embryo.
1.6 Physical properties of cashew nuts, such as texture, density, and moisture content.
1.7 The nutritional value of cashew nuts.
1.8 Characteristics of Cashew Nuts (Flavor profile, Nutritional content, Health benefits, culinary uses)
1.9 Present statistics on the production and consumption of cashew nuts worldwide and India.
1.10 Current trends in the cashew nut market, such as shifts in consumer preferences, emerging markets, and price fluctuations.
1.11 Economic importance of cashew nuts for farmers, processors, exporters, and consumers, including their contribution to livelihoods and trade.

Practical Content:

1.1 Identify of common Varieties of Cashew Nuts (Traditional varieties, Improved varieties, regional variations, commercially cultivated varieties, parts used, utility, structure drawing.
1.2 Demonstrate Proper identification methodology of Cashew Nuts Varieties ((Traditional varieties, Improved varieties, regional variations, commercially cultivated)
1.3 Highlight the physical properties of cashew nuts, such as texture, density, and moisture content
1.4 Examine Flavor profile, Nutritional content, Health benefits of different varieties of cashew nut.
1.5 Illustrate the economic importance of cashew nuts for farmers, processors, exporters, and consumers, including their contribution to livelihoods and trade.
1.6 Perform survey on current trends in the cashew nut market, such as shifts in consumer preferences, emerging markets, and price fluctuations.

Module No. 2: Cashew nut Cultivation and Quality Assurance

Outcome: Perform Cultivation of cashew using Good Agricultural practices (GAP) and best nursery practices (BNP)

Theory Content:

2.1 Innovative and advanced methods used in cashew nut plant to enhance productivity, quality, and sustainability
2.2 Methods of Good Agricultural practices (GAP) for cashew nut plantation.
2.3 Planting method, Irrigation method, weeding method under GAP.
2.4 Application of different types of planting materials.
2.5 Importance of selecting cashew nut varieties that are well-suited to the local climate and soil

conditions, ensuring optimal yield and quality.
2.6 Best nursery practices for different cashew nut varieties.
2.7 Types of Fertilizer (organic) and Pesticides (organic) used in cashew nut plantation.
2.8 Use of biofertilizers to enhance soil fertility, nutrient availability, and overall plant health.
2.9 Quality measures at each stage of cultivation.
2.10 Product quality and implement corrective actions as needed to meet quality standards.

Practical Content:

2.1 Choose well-drained sandy or sandy-loam soil with a pH range of 6.0 to 6.5.
2.2 Ensure good sunlight exposure and protection from strong winds.
2.3 Conduct the methods of Good Agricultural practices (GAP) for cashew nut cultivation.
2.4 Demonstrate Best nursery practices for different cashew nut varieties.
2.5 Planted Seeds directly into the ground or in nursery beds.
2.6 Prepare raised nursery beds with well-drained soil.
2.7 Sow seeds at a depth of 2-3 cm and maintain adequate spacing between them.
2.8 Provide regular irrigation and protect seedlings from pests and diseases.
2.9 Transplant seedlings when they are 8-10 months old and have developed a strong root system.
2.10 Maintain a spacing of around 8-10 meters between plants.
2.11 Prune the plants regularly to encourage branching and proper canopy development.
2.12 Apply organic mulch to retain soil moisture and suppress weed growth.
2.13 Provide balanced fertilization based on soil nutrient analysis.
2.14 Assess plant health, growth patterns, and fruit development.
2.15 Implement corrective measures promptly in case of any abnormalities.
2.16 Conduct soil tests regularly to ensure optimal nutrient levels.
2.17 Adjust fertilizer applications based on soil test results and plant needs.
2.18 Demonstrate Irrigation method, weeding method applicable in cashew nut plantation.

Module No. 3: Pest & Disease management

Outcome: Implement an integrated approach Pest & Disease control that combines biological, cultural, physical, and chemical control methods.

Theory Content:

3.1 Integrated pest management (IPM) strategies to minimize pesticide use and reduce environmental impact.
3.2 Signs of pests and diseases and take appropriate action when necessary.
3.3 Proper sanitation procedure by removing and destroying infested plant parts, fallen fruits, and weeds to reduce pest habitats.
3.4 Maintenance of adequate plant spacing and canopy management to improve air circulation and reduce pest infestation.
3.5 Introduce natural enemies of pests, such as predatory insects, parasitic wasps, or nematodes, to control pest populations.
3.6 Outline the pests like stem and root borers, aphids, and leaf miners.
3.7 Describe Control measures may include cultural practices, biological control, and judicious use of pesticides.
3.8 Elaborate Common diseases include powdery mildew, anthracnose, and root rot, which can be managed through proper sanitation and fungicidal treatments.

Practical Content:

3.1 Apply healthy planting material obtained from reputable sources to reduce the risk of introducing diseases.

3.2 Remove and destroy infected plant parts, including leaves, branches, and fruits, to prevent disease spread.

3.3 Clean pruning tools and equipment to prevent transmission of diseases between plants.

3.4 Ensure proper spacing between cashew trees to promote air circulation and reduce humidity, which can favor disease development.

3.5 Avoid overhead irrigation to minimize moisture on foliage, which can promote fungal diseases.

3.6 Select cashew varieties that are resistant or tolerant to common diseases prevalent in your region.

3.7 Apply fungicides preventatively or curatively according to disease incidence and severity.

3.8 Rotate between different fungicide classes to reduce the risk of fungicide resistance development.

3.9 Use bio-fungicides or beneficial microorganisms to suppress or control fungal pathogens.

3.10 Enhance soil microbial diversity through practices like composting and organic amendments to promote disease-suppressive soil environments.

3.11 Monitor cashew trees for symptoms of diseases, such as leaf spots, fruit rot, or dieback.

3.12 Implement early detection and rapid response strategies to manage diseases effectively.

Module No. 4: Harvesting

Outcome: Perform harvesting, plucking and cutting of cashew apples from the trees

Theory Content:

4.1 Identify flowering time to estimate the harvest time accurately.

4.2 Harvesting Index of cashew apple (size Maturity, colour Maturity, Texture Maturity, Seed Development)

4.3 Concept of Good Harvesting practices (GHP)

4.4 Plucking Technique of cashew apple from the tree (Tools, Positioning, Handling)

4.5 Elaborate Placing of harvested cashew apples in a basket or container lined with soft material to prevent bruising during transportation and ventilation to maintain fruit quality during transit.

4.6 Highlight how to minimize post-harvest losses.

Practical Content:

4.1 Identify Mature cashew apples typically change color from green to yellow, orange, or red, depending on the variety.

4.2 Touch the cashew apple gently to assess its texture. A mature cashew apple should feel firm but yield slightly to pressure.

4.3 Monitor the size of the cashew apples throughout the growing season to determine maturity.

4.4 Judge seed inside the cashew apple should be fully developed, indicating maturity.

4.5 Cut open a few cashew apples periodically to check the seed development.

4.6 Choose the right time of day to harvest cashew apples, preferably in the early morning or late afternoon when temperatures are cooler.

4.7 Avoid harvesting during hot weather to prevent damage to the fruit.

4.8 Wear gloves to protect your hands from the caustic liquid (urushiol) found in cashew nut shells, which can cause skin irritation.

4.9 Use sharp, clean pruning shears or secateurs for cutting the cashew apples from the tree.
4.10 Approach the cashew tree carefully and identify ripe cashew apples.
4.11 Hold the cashew apple firmly but gently to avoid damaging the fruit.
4.12 Use pruning shears to cut the stem of the cashew apple near the fruit, leaving a short stub attached to the fruit.
4.13 Place harvested cashew apples in a basket or container lined with soft material to prevent bruising during transportation.
4.14 Handle harvested cashew apples with care to avoid bruising or damage.
4.15 Label the basket or container with essential information such as the cashew variety, harvest date and destination.

Module No. 5: Post-Harvest Processing

Outcome: Perform Post-Harvest Processing of cashew nut

Theory Content:
5.1 The process of Removal of Nuts from Cashew Apples.
5.2 Cleaning and Grading process of Cashew Nut.
5.3 Steaming process of Cashew Nut.
5.4 The mechanical or manual shelling method of raw Cashew Nut by cracking outer shell to open and extract the cashew nut kernel.
5.5 Drying method to reduce moisture content of cashew nut kernel and prevent spoilage.
5.6 Peeling method to remove the thin skin or testa of cashew nut kernel.
5.7 Materials and equipment utilized in the cleaning, steaming. Shelling. drying and peeling of cashew nuts.

Practical Content:
5.1 Remove Cashew nuts shell attached to the bottom of the cashew apple.
5.2 Use appropriate tools to carefully separate the nut from the apple.
5.3 Wear protective gloves to avoid contact with the caustic liquid (urushiol) present in the cashew nut shell, which can cause skin irritation.
5.4 Spread the freshly extracted cashew nuts in a single layer on drying trays or mats.
5.5 Place the trays in a well-ventilated area away from direct sunlight.
5.6 Allow the nuts to dry naturally for several days, stirring occasionally to ensure even drying.
5.7 Apply Proper drying to reduces moisture content and prevents mold growth.
5.8 Inspect Raw cashew nuts and sorted to remove debris, foreign material, and defective nuts.
5.9 Grade Nuts based on size, shape, and quality.
5.10 Apply steam to Raw cashew nuts to soften the outer shell or testa.
5.11 Allow cooling process to cashew nuts to reduce temperature.
5.12 Execute mechanical or manual shelling method to cracked the outer shell for opening of cashew nut kernel.
5.13 Dried cashew nuts to reduce moisture content and prevent spoilage (Nuts are typically sun-dried or dried using mechanical dryers).
5.14 Remove the thin skin or testa cashew nut kernel by peeling (manually or using mechanical methods).
5.15 Process cashew nuts are graded based on size, color, and quality.
5.16 Conduct food safety standards and regulations at every step of the processing chain.

Module No. 6: Grading, shorting, quality control and packaging

Outcome: Perform sorting, grading and packaging of cashew nut

Theory Content:

6.1 Grading of cashew nuts based on various parameters such as size, color, and quality.

6.2 Size Sorting: Cashew nuts are sorted into different size categories, such as large, medium, and small.

6.3 Color Sorting: Nuts with uniform color are preferred in the market. Color sorting machines are used to remove discolored or damaged nuts from the batch.

6.4 Quality Grading: Cashew nuts are graded based on factors like kernel size, shape, and blemishes. Quality graders visually inspect each nut and assign grades such as "whole," "split," or "broken" based on their condition.

6.5 Mechanical Sorting and Manual Sorting to separate cashew nuts based on predetermined parameters such as size, weight, and color.

6.6 Quality control by Visual Inspection, Nutritional Analysis and Hygiene and Sanitation.

6.7 Packed procedure cashew nut into suitable containers for storage, transport, and sale.

Practical Content:

6.1 Use a set of sieves with different mesh sizes to sort cashew nuts based on size. Larger nuts will be retained on the top sieve, while smaller nuts will pass through to lower sieves.

6.2 Inspect the cashew nuts to identify any discolored or damaged ones.

6.3 Remove discolored or damaged nuts manually.

6.4 Inspect each nut individually for blemishes, splits, or other defects.

6.5 Grade the nuts as "whole," "split," or "broken" based on their condition.

6.6 Use a mechanical sorting machine equipped with sensors to sort cashew nuts based on size, color, and quality parameters. The machine will automatically separate the nuts into different categories according to the preset criteria.

6.7 Demonstrate Manual Sorting and inspect the nuts on a conveyor belt.

6.8 Examine a sample of sorted cashew nuts for defects, mold, or foreign material. Any substandard nuts are removed from the batch.

6.9 Check a sample of cashew nuts for laboratory testing.

6.10 Conduct nutritional analysis to ensure compliance with regulatory standards.

6.11 Ensure cleanliness and proper sanitation of processing equipment and facilities.

6.12Follow strict hygiene practices to prevent contamination and ensure food safety.

6.13 Choose appropriate packaging materials such as vacuum-sealed bags, cartons, or tin containers.

6.14 Ensure the packaging material protects the nuts from moisture, light, and physical damage.

6.15 Apply Label each package with essential information including product name, weight, expiration date, and nutritional information.

6.16 Use automated sealing machines to seal the packages securely.

6.17 Ensure proper sealing to maintain freshness and prevent contamination.

6.18 Packed cashew nuts in bulk containers such as sacks or drums.

6.19 Ensure the containers are properly sealed and labeled for transportation.

6.20 Conduct food safety standards and regulations at every step of the processing chain.

Module No. 7: By-Products

Outcome: Demonstrate uses of various by-products from cashew manufacturing process

Theory Content:

7.1 Method of utilization of Cashew Nut Shells as a by-Products (Energy Generation, Charcoal Production, Animal Feed)

7.2 Method of utilization of Cashew nut husks (fibrous outer layer surrounding the cashew nut).

7.3 Juice and alcoholic beverage production from Cashew Apple Pulp.

7.4 Extraction of natural pigments from cashew nut testa for dyeing textiles, leather, and handicrafts.

7.5 Utilization of cashew nut testa as a natural dye source promotes eco-friendly and sustainable dyeing practices.

7.6 Utilization of cashew nut shells as a source of charcoal helps in reducing deforestation pressure caused by traditional charcoal production methods.

7.7 Utilization of compost enriched with cashew nut testa to enhance plant growth and productivity in agriculture and horticulture.

7.8 Use of Cashew shell liquid (CSL) containing various chemicals and compounds, most notably anacardic acid, cardanol, and cardol, which have several industrial and commercial applications.

Practical Content:

7.1 Generate heat and electricity using Cashew nut shells in boilers or biomass power plants.

7.2 Carbonize cashew nut shells to produce charcoal, which can be sold for cooking, heating, or industrial purposes.

7.3 Prepare composted using Cashew nut husks to produce organic fertilizer for agricultural purposes.

7.4 Prepare Cashew apple pulp to produce cashew apple juice, which can be sold as a nutritious beverage.

7.5 Process cashew apple pulp into jams, jellies, syrups, and fruit preserves, adding value to the by-product.

7.6 Utilize cashew apple pulp in the production of sauces, chutneys, and desserts, offering unique flavors and textures.

7.7 Extract natural pigments from cashew nut testa for dyeing textiles, leather, and handicrafts.

7.8 Utilizing cashew nut testa as a natural dye source promotes eco-friendly and sustainable dyeing practices.

7.9 Incorporate cashew nut testa into organic fertilizers or soil conditioners, providing essential nutrients and improving soil structure.

7.10 Use Cashew shell liquid by production of phenolic resins, which find applications in the manufacture of friction materials, coatings, adhesives, and molded parts.

7.11 Use Cashew shell liquid as a base material for the production of lubricants and oil additives.

7.12 Formulated Cashew shell liquid into eco-friendly insecticides and pesticides for controlling pests and pathogens in crops.

7.13 Incorporate Cashew shell liquid derivatives into cosmetic and personal care products, including soaps, shampoos, lotions, and perfumes, for their beneficial properties and fragrance.

7.14 Demonstrate potential pharmacological activities of Cashew shell liquid, including antimicrobial, anti-inflammatory, and wound-healing properties.

Module 8: OJT

Outcome: Work in real job situation with special emphasis on basic safety and hazards in this domain

Practical Content:

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for **60 Hours.**)

Module 9: Employability Skills **(60 Hrs)**

Key Learning Outcomes

Introduction to Employability Skills Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

Basic English Skills Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

Career Development & Goal Setting Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.

13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy Duration: 5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely

19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

Customer Service Duration: 5 Hours

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

Learning Outcome – Assessment Criteria

Module No.	Outcome	Assessment Criteria
1	Identify Cashew nut Varieties, characteristics and market potential	**After completion of this module students will be able to:** 1.1 Identify of common Varieties of Cashew Nuts (Traditional varieties, Improved varieties, regional variations, commercially cultivated varieties, parts used, utility, structure drawing. 1.2 Examine physical properties of cashew nuts. 1.3 Analyze flavor profile and nutritional content. 1.4 illustrate economic importance of cashew nuts. 1.5 Assess comprehension of internal structure and composition. 1.6 Analyze nutritional value and health benefits.
2	Perform Cultivation of cashew using Good Agricultural practices (GAP) and best nursery practices (BNP)	**After completion of this module students will be able to:** 2.1 Explain innovative methods for productivity enhancement. 2.2 Describe Good Agricultural Practices (GAP) methodologies. 2.3 Demonstrate the process of planting, irrigation, and weeding techniques. 2.4 Analyze illustration of planting material application. 2.5 Evaluate on selection of climate-suited cashew varieties. 2.6 Demonstrate best nursery practices for various varieties. 2.7 Identify the types of organic fertilizer and pesticide types. 2.8 Find the quality measures throughout cultivation stages. 2.9 Monitor product quality and implement corrective actions.
3	Implement an integrated approach Pest & Disease control that combines biological, cultural, physical and chemical control methods.	**After completion of this module students will be able to:** 3.1 Illustrate integrated pest management (IPM) strategies. 3.2 Assess the signs of pests and diseases. 3.3 Practice of proper sanitation for pest control. 3.4 Maintain adequate plant spacing and canopy management. 3.5 Explain the outline of common pests and their control measures. 3.6 Elaborate common diseases and their management. 3.7 Examine the cleanliness of pruning tools and equipment. 3.8 Find the spacing between cashew trees for disease prevention. 3.9 Identify the selection of disease-resistant cashew varieties. 3.10 interpret the use of bio-fungicides and soil enhancement techniques. 3.11 Monitor cashew trees for disease symptoms.
4	Perform harvesting, plucking and cutting of cashew apples from the trees	**After completion of this module students will be able to:** 4.1 Identify Mature cashew apples typically change color from green to yellow, orange, or red, depending on the variety. 4.2 Analyze the cashew apple gently to assess its texture. A mature cashew apple should feel firm but yield slightly to

Module No.	Outcome	Assessment Criteria
		pressure. 4.3 Monitor the size of the cashew apples throughout the growing season to determine maturity. 4.4 Judge seed inside the cashew apple should be fully developed, indicating maturity. 4.5 Check few cashew apples periodically for the seed development. 4.6 Choose the right time of day to harvest cashew apples, preferably in the early morning or late afternoon when temperatures are cooler. 4.7 Avoid harvesting during hot weather to prevent damage to the fruit. 4.8 Wear gloves to protect your hands from the caustic liquid (urushiol) found in cashew nut shells, which can cause skin irritation. 4.9 Place harvested cashew apples in a basket or container lined with soft material to prevent bruising during transportation. 4.10 Handle harvested cashew apples with care to avoid bruising or damage. 4.11 Label the basket or container with essential information such as the cashew variety, harvest date, and destination.
5	Perform Post-Harvest Processing of cashew nut	**After completion of this module students will be able to:** 5.1 Demonstrate the process of removing nuts from cashew apples. 5.2 Identify appropriate tools for separating nuts from apples. 5.3 Illustrate the use of protective gear to avoid skin irritation. 5.4 Demonstrate proper spreading and drying techniques for cashew nuts. 5.5 Execute appropriate methods for reducing moisture content. 5.6 Illustrate proper inspection and sorting procedures. 5.7 Demonstrate the grading process based on established criteria. 5.8 Identify the steps involved in steaming cashew nuts. 5.9 Demonstrate the proper execution of mechanical or manual shelling. 5.10 Illustrate the use of proper drying methods. 5.11 Demonstrate the process of peeling cashew nut kernels. 5.12 Execute proper food safety standards throughout processing.
6	Perform sorting, grading and packaging of cashew nut	**After completion of this module students will be able to:** 6.1 Demonstrate the process of grading cashew nuts based on size, color, and quality. 6.2 Execute size sorting using appropriate sieves and categorization techniques.

Module No.	Outcome	Assessment Criteria
		6.3 Identify and remove discolored or damaged nuts during inspection. 6.4 Illustrate quality grading by visually inspecting nuts for blemishes and defects. 6.5 Demonstrate the use of mechanical sorting machines for efficient sorting. 6.6 Execute manual sorting procedures on a conveyor belt. 6.7 Identify substandard nuts during sample inspection for defects. 6.8 Illustrate the process of conducting nutritional analysis. 6.9 Demonstrate adherence to cleanliness and sanitation protocols. 6.10 Execute proper packaging procedures to protect nuts from damage. 6.11 Illustrate labeling procedures for packaging materials. 6.12 Demonstrate the use of automated sealing machines for packaging. 6.13 Execute proper sealing techniques to maintain freshness. 6.14 Identify appropriate bulk containers for packed cashew nuts. 6.15 Illustrate adherence to food safety standards throughout processing.
7	Demonstrate uses of various by-products from cashew manufacturing process	**After completion of this module students will be able to:** 7.1 Demonstrate various by products of the cashew nuts shells, husks, testa etc 7.2 Identify the chemical composition and properties of cashew shell liquid and its constituents 7.3 Apply techniques for generating heat and electricity using cashew nut shells in boilers 7.4 Demonstrate the process of carbonization of cashew nut shells to produce charcoal for various purpose 7.5 prepare compost enriched with cashew nut husks and testa to produce organic fertilize for agricultural use. 7.6 Process cashew apple pulp into juices, jams, jellies and other value-added products
8	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).
9	Employability Skill	As per guided curriculum

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

Sl no	Tools and Equipment	Quantity
1	Kodal	03
2	Belcha	03
3	Sickle	03
4	Khurpi	03
5	Watering can	03
6	Knife	03
7	Grafting tools	03
8	Axe	03
9	Pruning knife	03
10	Polypots	06
11	Plastic sheet	30 metre
12	Mother beds	02
13	Sunken beds	02
14	50% agro nets	30 meter
15	Pack sealing machine	02
16	Weighing Balance (Digital) -120 gm capacity	02
17	Laboratory Weighing Balance (Digital) – 20 kg capacity	02
18	Hand gloves (for handling cashew nuts)	30
19	Safety goggles	30
20	Apron or lab coat	30
21	Stainless steel or aluminum pot (for boiling)	12
22	Water vessel (for boiling)	6
23	Steam cooker (optional, for steaming)	3
24	Cashew nut shelling machine	1
25	Cashew nut peeling machine	1
26	Air compressor (for peeling machine)	1
27	Sorting tables	2
28	Stainless steel trays or drying racks	12
29	Dehydrator (for drying)	1
30	Roasting machine	1
31	Cooling trays	1
32	Packaging materials (bags, containers, etc.)	100
33	Weighing scale 100g to 2000g	2
34	Labeling machine (optional)	1
35	Nut grader or sorting machine (optional, for size sorting)	1
36	Vacuum sealing machine (for packaging)	1
37	Storage containers (for processed cashew nuts)	6
38	Cleaning brushes and cloths	12
39	Cleaning solutions (for equipment maintenance)	5lt
40	Forklift or manual handling equipment (for moving heavy loads)	6
41	Quality control equipment (e.g., moisture meters)	2
42	Personal protective equipment (PPE) for workers (masks, hats, etc.)	30

Marks Distribution

Outcome	Outcome Code	Total Th marks	Total Pr marks	Total OJT marks
Identify Cashew nut Varieties, characteristics and market potential	FPT/1114/OC1	20	80	0
Perform Cultivation of cashew using Good Agricultural practices (GAP) and best nursery practices (BNP)	FPT/1114/OC2	30	120	0
Implement an integrated approach Pest & Disease control that combines biological, cultural, physical and chemical control methods.	FPT/1114/OC3	20	90	0
Perform harvesting, plucking and cutting of cashew apples from the trees	FPT/1114/OC4	20	80	0
Perform Post-Harvest Processing of cashew nut	FPT/1114/OC5	20	80	0
Perform sorting, grading and packaging of cashew nut	FPT/1114/OC6	20	120	0
Demonstrate uses of various by-products from cashew manufacturing process	FPT/1114/OC7	20	80	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	FPT/1114/OC8	0	0	150
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0