

Model Curriculum

CA Store Technician

SECTOR: AGRICULTURE & ALLIED
SUB-SECTOR: AGRICULTURE INDUSTRIES
**OCCUPATION: POST-HARVEST SUPPLY CHAIN
MANAGEMENT**
REF ID: AGR/Q7508, V1.0
NSQF LEVEL: 5



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

AGRICULTURE SKILL COUNCIL OF INDIA

for the

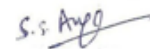
MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'CA Store Technician' QP No. 'AGR/Q7508 NSQF Level 5'

Date of Issuance: June 30th, 2015

Valid up to: July 10th, 2022

* Valid up to the next review date of the Qualification Pack



Authorised Signatory
(Agriculture Skill Council of India)

TABLE OF CONTENTS

<u>1. Curriculum</u>	04
<u>2. Trainer Prerequisites</u>	07
<u>3. Annexure: Assessment Criteria</u>	08

CA Store Technician

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “**CA Store Technician**”, in the “**Agriculture & Allied**” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	CA Store Technician		
Qualification Pack Name & Reference ID.	AGR/Q7508, v1.0		
Version No.	1.0	Version Update Date	22/08/2019
Pre-requisites to Training	Diploma in Electrical/Instrumentation/Mechanical/E&C/E&E/E&I		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Set up the CA Equipment for operation: Setting up of the machine, carbon dioxide, oxygen parameters • Operate the CA Equipment: Inspection of fruits, operation of equipment, Quality standards • Adjust the Machines: Machine adjustments, basic repair of CA Machines (CO2 Deputor, Nitrogen Generator, Air Compressors, Gas Analyzer, Chamber Testing (Air Tightness), Sensors for temperature and humidity, CA Pipelines) • Undertake safety measures: Well versed with health and safety measures in terms of personal safety and others as well. 		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “CA Store Technician” Qualification Pack issued by “Agriculture Skill Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	Introduction Theory Duration (hh:mm) 5:00 Practical Duration (hh:mm) 0:00 Corresponding NOS Code	<ul style="list-style-type: none"> Understand General Discipline in the class room (Do's & Don'ts) Study the Scope of preservation/storage of packed fruits and vegetables Understand Role of a CA Store Technician 	Laptop, white board, marker, projector
2	Prepare CA equipments for operation Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 28:00 Corresponding NOS Code AGR/N7532	<ul style="list-style-type: none"> Understand the operation of CA equipment Understand the shelf life of the horticulture produce Understand the storage conditions for different horticulture produce Understand the different parts, components and controls of the machine Set up the machine for operation Understand and maintain the required factors like Humidity level, gas level(nitrogen, carbon dioxide, oxygen), oil level, radiators, air filters, temperature level Understand the working procedure of scrubbers, coolant 	Laptop, white board, marker, projector
3	Operate CA equipments Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 37:00 Corresponding NOS Code AGR/ N7533	<ul style="list-style-type: none"> Understand the safe machine operating procedure Gain knowledge about different parts and its working procedures, components, controls of the equipment Operate the CA machines Understand the quality standards to be maintained Understand the Fruit ripening process Adjust the temperature as per the requirement of fruits Maintain the operational records Understand the Trouble shooting of CA equipments 	Laptop, white board, marker, projector,
4	Perform daily maintenance of CA equipments Theory Duration (hh:mm)	<ul style="list-style-type: none"> Understand the need for daily maintenance of CA equipments Check all CA Controlled machines Check CA gas pressure meter Check temperature of CA Check ventilation 	Laptop, white board, marker, projector,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	15:00 Practical Duration (hh:mm) 29:00 Corresponding NOS Code AGR/N7534	<ul style="list-style-type: none"> • Check stand by power source and safety measures • Check scrubbers, humidifiers, ethylene concentration • Maintain the record on gases, temperature, humidity reading 	
5	Undertake safety measures on CA equipments' operation Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 36:00 Corresponding NOS Code AGR/N9903	<ul style="list-style-type: none"> • Understand the safety measures of machine • Maintain general safety measures of CA room • Maintain a clean & efficient work environment • Render appropriate emergency procedures • Basic knowledge of Disaster Management 	Laptop, white board, marker, projector, safety shoes, first aid box
	Total Duration: Theory Duration (hh:mm) 80:00 Practical Duration (hh:mm) 130:00	Unique Equipment Required: Laptop, white board, marker, projector, safety shoes, first aid box, Protective Clothes, Apron, CA Store Equipments	

Grand Total Course Duration: **210 Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Agriculture Skill Council of India](#))

Trainer Prerequisites for Job role: “CA Store Technician” mapped to Qualification Pack: “AGR/Q7508, v1.0”

Sr. No.	Area	Details
1	Description	Trainer is responsible for educating the trainees- set up the CA Equipment for day’s work by conducting pre-start procedures, operate the equipment to maintain the proper carbon dioxide and oxygen parameters. The individual is well conversant with machine adjustments and takes up basic repair of CA Machines (CO2 Deputor, Nitrogen Generator, Air Compressors, Gas Analyzer, Chamber Testing (Air Tightness), Sensors for temperature and humidity, CA Pipelines) to keep it operational during critical storage time.
2	Personal Attributes	Trainer should be Subject Matter Expert, he/ she should have good communication skills, leadership skills, observation skills, practical oriented skills
3	Minimum Educational Qualifications	ITI Preferred
4a	Domain Certification	Certified for Job Role: “CA Store Technician” mapped to QP: “AGR/Q7508,v1.0”. Minimum accepted score is 80%.
4b	Platform Certification	Certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q2601”. Minimum accepted score is 80%
5	Experience	<ul style="list-style-type: none"> ITI with 5+ Years of experience in relevant field

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	CA Store Technician
Qualification Pack	AGR/Q7508, v1.0
Sector Skill Council	Agriculture

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in aggregate
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Assessable Outcome	Assessment Criteria	Total Mark (400)	Out Of	Marks Allocation	
				Theory	Skills Practical
1.AGR/N75 32: Prepare CA Equipments for operation	PC1.check CA machines performance visually.	80	5	2	3
	PC2.check all the parts of the controlled atmosphere equipment		5	2	3
	PC3.lookout for signs of possible problems such as carbon dioxide and oxygen level etc.		10	5	5
	PC4.check temperature level of the equipment		5	3	2
	PC5.check the bearings, chains and belts		5	3	2
	PC6.check humidity level of the equipment		5	2	3
	PC7.check the gas level of the equipment		5	2	3
	PC8.check the scrubbers		5	2	3
	PC9.check for oil level in the engine		5	3	2
	PC10.check the nitrogen level.		5	3	2
	PC11.check the radiators to see if they are full of water /coolant		10	6	4
	PC12.check the air filters for clean lines and adjust it properly if required		5	2	3
	PC13.fill the machines with fuel		5	3	2
	PC14.check for carbon dioxide and oxygen level		5	2	3
			80	40	40

2.AGR/N75 33: Operate CA Equipments	PC1.visually inspect the fruit	120	10	5	5
	PC2.check the condition of the fruit e.g. fully or half ripe fruit		20	10	10
	PC3.check the variety of the fruits when arrive at store		20	10	10
	PC4.turn on the machine and check all the displays, indicators and meters		5	2	3
	PC5.check that there is no warning display signal		5	2	3
	PC6.check the temperature and humidity level of the CA store.		5	3	2
	PC7.operate the controlled atmosphere equipment in safe, controlled and correct manner as per the SOP/manufacturer's manual		20	10	10
	PC8.achieve maximum machine efficiency at optimum fuel consumption		20	10	10
	PC9.maintain operational records		15	8	7
			120	60	60
3.AGR/N75 34: Perform daily maintenanc e of CA Equipments	PC1.check the filters of N2 and atmospheric air generator	120	10	5	5
	PC2.check the oil levels of generators/ compressors		5	2	3
	PC3.check the belts tensions of air handling units once in month		5	3	2
	PC4.check the scrubber is working properly		5	2	3
	PC5.check ventilation systems are working properly		5	3	2
	PC6.check humidifiers are working properly		10	5	5

	PC7.check the pressure indicators of CA rooms		5	2	3
	PC8.check temperature and humidity of CA rooms		5	2	3
	PC9.check ethylene concentration in CA room		10	5	5
	PC10.check the temperature sensors of the CA rooms		5	2	3
	PC11.check ventilation system of CA room is working properly		5	3	2
	PC12.check leakage of gas from CA room		5	3	2
	PC13.check seals of CA rooms		5	3	2
	PC14.check Rubber gaskets of doors		10	5	5
	PC15.check the standby power source working properly		5	2	3
	PC16.check water level of safety relief valves		5	3	2
	PC17.check pressure relief valves		5	2	3
	PC18.take all the reading of gases pressure twice in a day		5	2	3
	PC19.take all the temp and RH reading twice in a day		5	3	2
	PC20.take all the gaseous levels twice in a day		5	3	2
			120	60	60
4.AGR/N75 35: Undertake safety measures on CA Equipment's	PC1.check all the MCB current levels of all the machine	80	4	2	2
	PC2.check all the pressure relief for different gas generator		6	3	3

operation	machines			
	PC3.keep dry ice cylinder nearer to every machine	6	3	3
	PC4.check proper earthing of equipment's power supply	4	2	2
	PC5.install removable access latch in the gas tight door with self-containing breathing equipment	4	2	2
	PC6.place ladder inside the room nearer to refrigeration unit	4	2	2
	PC7.place danger sign on each gastight door	4	2	2
	PC8.check the rubber gaskets of sealing door	4	2	2
	PC9.break seals C A room notify the higher authority.	5	2	3
	PC10.check the oxygen level inside the CA room up to 21 %	5	2	3
	PC11.Keep ready at least two set of tested breathing apparatus ready	3	1	2
	PC12.review the symptoms of Asphyxia	3	1	2
	PC13.ensure that the repair person should take the breathing apparatus and the oxygen tank is full on with breathing air	5	3	2
	PC14.make sure the backup person should be there when the repair person is working inside CA room	5	3	2
	PC15.ensure that the precaution alarm should be active for ethylene gas excess in CA room	4	2	2

	PC16.ensure that the general safety alarm should be on Red or work under progress		5	3	2
	PC17.ensure that the person should wear the safety jacket before entering into the CA rooms		2	1	1
	PC18.check all the safety measures of CA rooms		2	1	1
	PC19.check the first aid box near to CA rooms		5	3	2
			80	40	40
	Total	400	400	200	200