



Model Curriculum

QP Name: Service Assistant (Agriculture Machineries)

QP Code: STC - AGR/NSQF-2022/0232

QP Version: 2.0

NSQF Level: 3

Model Curriculum Version: 2.0



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Training Parameters

Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Service Assistant (Agriculture Machineries)
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	7233.2800
Minimum Educational Qualification and Experience	Grade 10 OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject OR Grade 8 Pass with 2 year experience OR 5th Grade Pass with 5 yrs experience
Pre-Requisite License or Training	NO
Minimum Job Entry Age	18 years
Last Reviewed On	3.5.2023
Next Review Date	3.5.2026
Version	2.0
NSQC Approval Date	3.5.2023
Model Curriculum Creation Date	3.5.2023
Model Curriculum Valid Up to Date	3.5.2026
Model Curriculum Version	2.0
Minimum Duration of the Course	600 hours
Maximum Duration of the Course	600 hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the participants will be able to:

- Apply safe working Practices
- Identify and select various agricultural machineries and describe the uses of each.
- Describe the operations of Tillage implements, demonstrate its working, identify the faults and repair.
- Describe the operations of seeding machinery, its working, identify the faults and repair.
- Recognize different components, different faults, their cause & repair minor faults concern with harvesting machineries and threshing machineries.
- Classify IC engines used in agriculture, explain the working of engine system, fuel system, cooling system, lubricating system, inlet & exhaust system with the help of flow charts
- Identify and Describe different component and systems of Tractor and repair minor faults
- Identify and Recognize different component and systems of Power Tiller and rectify minor faults
- Demonstrate different component and systems of Plant Protection Equipment and rectify minor faults
- Exhibit different component and systems of Irrigation Equipment and rectify minor faults
- Demonstrate different component and systems of electric motor used in Pump Set for Agricultural use and rectify minor faults
- Understand principles of pump set, their components, common faults and dismantling different parts.
- Calculate rough estimation and costing of repair work for each machinery
- Able to work in real job situation with special emphasis on basic safety and hazards in this domain.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/0232/OC1 Apply Safe Working Practices NOS Version No.: 2.0 NSQF Level: 3	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module1: Apply Safe Working Practices	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours

AGR/0232/OC2 Identify and select various agricultural machineries and describe the uses of each. NOS Version No. :2.0 NSQF Level:3	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module2: Identify and select various agricultural machineries and describe the uses of each.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC3 Describe the operations of Tillage implements, demonstrate its working, identify the faults and repair. NOS Version No.:2.0 NSQF Level: 3	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module3: Describe the operations of Tillage implements, demonstrate its working, identify the faults and repair.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC4 Describe the operations of seeding machinery, its working, identify the faults and repair. NOS Version No.:2.0 NSQF Level:3	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module 4: Describe the operations of seeding machinery, its working, identify the faults and repair.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC5 Recognize different components, different faults, their cause & repair minor faults concern with Harvesting machineries and Threshing machineries. NOS Version No.:2.0 NSQF Level: 3	5:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module 5: Recognize different components, different faults, their cause & repair minor faults concern with Harvesting machineries and Threshing machineries	5:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC6 Classify IC engines used in agriculture, explain the working of engine system, fuel system,	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours

cooling system, lubricating system, inlet & exhaust system with the help of flow charts NOS Version No.:2.0 NSQF Level: 3					
Module 6: Classify IC engines used in agriculture, explain the working of engine system, fuel system, cooling system, lubricating system, inlet & exhaust system with the help of flow charts	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC7 Identify and Describe different component and systems of Tractor and repair minor faults. NOS Version No.: 2.0 NSQF Level: 3	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module 7: Identify and Describe different component and systems of Tractor and repair minor faults	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC8 Identify and Recognize different component and systems of Power Tiller and rectify minor faults NOS Version No.: 2.0 NSQF Level: 3	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module 8: Identify and Recognize different component and systems of Power Tiller and rectify minor faults	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC9 Demonstrate different component and systems of Plant Protection Equipment	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours

and rectify minor faults NOS Version No.: 2.0 NSQF Level: 3					
Module9:Demonstrate different component and systems of Plant Protection Equipment and rectify minor faults	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC10 Exhibit different component and systems of Irrigation Equipment and rectify minor faults NOS Version No.: 2.0 NSQF Level: 3	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module 10: Exhibit different component and systems of Irrigation Equipment and rectify minor faults	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC11 Demonstrate different component and systems of electric motor used in Pump Set for Agricultural use and rectify minor faults NOS Version No.: 2.0 NSQF Level: 3	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module 11: Demonstrate different component and systems of electric motor used in Pump Set for Agricultural use and rectify minor faults.	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC12 Understand principles of pump set, their components, common faults and dismantling different parts. NOS Version No.: 2.0 NSQF Level: 3	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
Module 12: Understand principles of pump set, their components, common faults and dismantling different parts.	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours

AGR/0232/OC13 Calculate rough estimation and costing of repair work for each machinery NOS Version No.: 2.0 NSQF Level: 3	10:00 Hours	20:00 Hours	00:00 Hours	00:00 Hours	30:00 Hours
Module 13: Calculate rough estimation and costing of repair work for each machinery	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0232/OC14 Able to work in real job situation with special emphasis on basic safety and hazards in this domain. NOS Version No.: 2.0 NSQF Level: 3	00:00 Hours	00:00 Hours	150:00 Hours	00:00 Hours	150:00 Hours
Module 14: Able to Work in real job situation with special emphasis on basic safety and hazards in this domain.	00:00 Hours	00.00 Hours	150:00Hours	00:00Hours	150:00 Hours
DGT/VSQ/N0102 Employability Skills NOS Version No.: 1.0 NSQF Level: 3	60:00 Hours	00:00 Hour s	00:00 Hours	00:00 Hours	60:00 Hours
Module 15: Employability Skills	60:00 Hours	00:00Hour s	00:00Hours	00:00Hours	60:00 Hours
Total Duration	150:00 Hours	300:00 Hours	150:00 Hours	00:00 Hours	600:00 Hours

Module Details

Module 1: Apply Safe Working Practices

Mapped to AGR/0232/OC1 V2.0

Terminal Outcomes:

- Apply and maintain Safe Working Practices
- Recognize any unsafe situations according to site policy.
- Identify fire and safety and fire hazards
- Identify different fire extinguishers and use them as per requirements.

Duration: 10:00	Duration: 20:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> ● Maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements according to site policy. ● Recognize any unsafe situations according to site policy, and assess his report accordingly. ● Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures. 	<ul style="list-style-type: none"> ● Recognize any unsafe situations according to site policy, and assess his report accordingly. ● Demonstrate Personal Protective Equipment (PPE) like: safety helmet, safety glove, and safety shoe, use the same as per related working environment. ● Demonstrate basic first aid & CPR and use them under different circumstances. ● Identify different fire extinguishers and use the same as per requirement in a mock drill.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook.	
Tools, Equipment and Other Requirements:	
First Aid box, Different types of fire extinguishers, PPE kits, Safety charts.	

Module2: Identify and select various agricultural machineries and describe the uses of each.

Mapped to AGR/0232/OC2 V2.0

Terminal Outcomes:

- Identify different agricultural machineries.
- Illustrate the application of each
- Locate and identify the different accessories as per applications

Duration: 10:00	Duration: 20:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<p>The students will be able to describe the followings-</p> <ul style="list-style-type: none"> ● Crop production machinery ● Tillage implements ● Seeding machinery ● Harvesting machinery ● Threshing machinery ● Diesel pump set ● Tractor and power Tiller ● Plant protection equipment ● Post-harvest machinery ● Farm equipment 	<p>The students will be able to demonstrate the activities of the following equipment.</p> <ul style="list-style-type: none"> ● Identify different agricultural machineries. ● Illustrate the application of each ● Locate and identify the different accessories as per application ● Crop production machinery ● Tractor and power Tiller ● Plant protection equipment ● Post-harvest machinery ● Farm equipment
<p>Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook</p>	
<p>Tools, Equipment and Other Requirements</p> <p>Tractor, Power tiller, Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Engine cut models, Diesel Engine, Motor Pump set, Air-compressor, Hand tools/ Kit box</p>	

Module 3: Describe the operations of Tillage implements, demonstrate its working, identify the faults and repair.

Mapped to AGR/0232/OC3 V2.0

Terminal Outcomes:

- State the types and necessity of Tillage.
- Demonstrate functions and types of implements for primary and secondary tillage operations.
- Demonstrate Constructional parts and working of Mouldboard plough, Disk Plough, Cultivators, Disk Harrow, and Bund former.
- Adjust the alignment, take care and safety precautions
- Demonstrate common faults and remedies regarding tillage implement.

Duration:10:00	Duration:20:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<p>The students will be able to recognize the followings:-</p> <ul style="list-style-type: none"> ● Tillage Implements - ● Tillage definition, types and necessity; Functions and types of implements for primary and secondary tillage operations. ● Constructional parts and working of Mouldboard plough, Disk Plough, Cultivators, Disk Harrow, and Bund former. ● Adjustment, care and safety precautions, common faults and remedies. 	<p>The students will be able to demonstrate the followings:-</p> <ul style="list-style-type: none"> ● State the types and necessity of Tillage. ● Demonstrate functions and types of implements for primary and secondary tillage operations. ● Demonstrate Constructional parts and working of Mouldboard plough, Disk Plough, Cultivators, Disk Harrow, and Bund former. ● Adjust the alignment, take care and safety precautions ● Demonstrate common faults and remedies regarding tillage implement.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Tractor, Power tiller, Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Air-compressor, Hand tools/ Kit box	

Module 4: Describe the operations of seeding machinery, its working, identify the faults and repair...

Mapped to AGR/0232/OC4 V2.0

Terminal Outcomes:

- Demonstrate different methods of sowing such as drilling, dibbling, planting etc.
- Recognize different implements used for sowing /planting and transplanting
- Demonstrate constructions and working principle of seed-drill, planters and seed cum fertilizer drill.
- Identify common faults and remedies regarding seeding machineries.
- Adjust the alignment, take care and safety precautions regarding seeding machineries.

Duration: 10:00	Duration: 20:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Methods of sowing- drilling, dibbling, planting; implements for sowing /planting and transplanting. • Constructions and working of seed drill, planters, seed cum fertilizer drill. Adjustment, care and safety precautions, common faults and remedies. 	<ul style="list-style-type: none"> • Identify of different parts of seeders, planters and seed cum fertilizer drills. • Adjustments of furrow openers, replacement of worn-out / damaged parts of seed drill/ seed cum fertilizer drills. • Calibration of seed drill/ seed cum fertilizer drills. Familiarization of rice transplanters. • Operation of seed drill/ seed cum fertilizer drills and rice transplanters.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Tractor, Power tiller, Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Engine cut models, Diesel Engine, Motor Pump set, Air-compressor, Hand tools/ Kit box	

Module 5: Recognize different components, different faults, their cause & repair minor faults concern with harvesting machineries and Threshing machineries

Mapped to AGR/0232/OC5 V2.0

Terminal Outcomes:

- Demonstrate different types of Conventional and mechanized harvesting Tools and Machines such as Sickle, Reaper, Harvester, etc.
- Describe construction and working principle of Power Tiller operated Vertical Conveyor Reaper.
- Identify common faults and remedies regarding seeding machineries.
- Rectify and test the alignment with safety precautions regarding seeding machineries.
- Demonstrate different types of Threshing Machinery such as manual and power operated.
- Describe construction and working principle of hand and paddle threshers, power threshers as well as Combine Harvester.
- Identify common faults and remedies regarding manually operated and machine operated threshing machineries.
- Adjust the alignment, test and safety precautions regarding harvesting and threshing machineries.

Duration: 5:00	Duration: 25:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<p>The candidate will be able to describe the following:-</p> <p>Harvesting Machinery -</p> <ul style="list-style-type: none"> • Conventional and mechanized harvesting Tools and Machines; Sickle, Reaper, Harvester. • Construction and working of Power Tiller operated Vertical Conveyor Reaper. Adjustment, care and safety precautions, common faults and remedies. <p>Threshing Machinery -</p> <ul style="list-style-type: none"> • Types of threshers - manual and power operated. • Construction and working of hand and paddle threshers, power threshers. Brief introduction of Combine Harvester. • Adjustment, care and safety precautions, common faults and remedies of manual and power operated threshers. 	<p>The candidate will be able to demonstrate the following:-</p> <ul style="list-style-type: none"> • Identification of different parts of Vertical Conveyor Reaper. • Adjustments of cutter bar, registration and alignment. • Operation, care and maintenance of Vertical Conveyor Reaper. • Identification of different parts of power thresher. Dismantling and assembling of power thresher. • Identification of mini combine/ combine harvester. Operation of mini combine. • Identify common faults and remedies regarding manually operated and machine operated threshing machineries. • Adjust the alignment, test and safety precautions regarding threshing machineries.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Tractor, Power tiller, Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Engine cut models, Diesel Engine, Motor Pump set, Air-compressor, Hand tools/ Kit box	



Module 6: Classify IC engines used in agriculture, explain the working of engine system, fuel system, cooling system, lubricating system, and inlet & exhaust system with the help of flow charts

Mapped to AGR/0232/OC6 V2.0

Terminal Outcomes:

- Demonstrate different types of IC engine.
- Describe the characteristics, application of two stroke and four stroke engine.
- Recognize different parts of an IC engine and the function of each.
- Describe components and function of different systems concerned with engine such as engine system, fuel system, cooling system, lubricating system, and inlet & exhaust system with the help of flow chart.
- Dismantle the engine, clean different parts, detect the fault, rectify and refit.
- Identify different parts such as couplings, pipes, glands, gaskets etc.
- Identify the defects and perform repairing of the same.
- Perform alignment test for engine and its adjustment

Duration: 05:00	Duration: 25:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<p>The candidate will be able to describe the following:-</p> <p>IC Engine -</p> <ul style="list-style-type: none"> • Engine classification - CI and SI Engines, 2S and 4S Engines; working principles of the IC engines and difference between 2S & 4S, CI & SI Engines. • Brief description of Engine components. • Engine Systems - • Brief description of engine systems and their necessity. • Understanding of fuel system, cooling system, lubrication system, inlet and exhaust system using flow charts. 	<p>The candidate will be able to demonstrate the following:-</p> <ul style="list-style-type: none"> • IC Engine - Identification of Engine parts. • Cleaning and inspection of various parts. • Engine overhauling- dismantling, cleaning & adjusting and assembling. <p>Engine Systems -</p> <ul style="list-style-type: none"> • Describe components and function of different systems concerned with engine such as engine system, fuel system, cooling system, lubricating system, and inlet & exhaust system with the help of flow chart. • Dismantle the engine, clean different parts, detect the fault, rectify and refit. • Identify different parts such as couplings, pipes, glands, gaskets etc. • Identify the defects and perform repairing of the same. • Perform alignment test for engine and its adjustment
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	

Tractor, Power tiller, Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Engine cut models, Diesel Engine, Motor Pump set, Air-compressor, Hand tools/ Kit box

Module 7: Identify and Describe different component and systems of Tractor and repair minor faults

Mapped to AGR/0232/OC7 V2.0

Terminal Outcomes:

- State different makes and models of Tractor
- Describe different components and systems of Tractor
- State tractor controls and matching implements

Duration: 05:00	Duration: 25:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<p>The candidate will be able to describe the following:-</p> <ul style="list-style-type: none"> • Different makes and models of Tractor. • Study of different components and systems of Tractor. • Study of tractor controls and matching implements. 	<p>The candidate will be able to demonstrate the following:-</p> <ul style="list-style-type: none"> • Identification of different parts and systems of tractor. • Operation of tractor without implements. • Implement hitching and tractor operation.
Classroom Aids:	
<p>Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook</p>	
Tools, Equipment and Other Requirements	
<p>Tractor, Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Hand tools/ Kit box</p>	



Module 8: Identify and Recognize different component and systems of Power Tiller and rectify minor faults

Mapped to AGR/0232/OC8 V2.0

Terminal Outcomes:

- State Different makes and models of Power Tiller.
- Trainee will be asked to demonstrate different components and systems of Power Tiller
- State power tiller controls and matching implements

Duration: 05:00	Duration: 25:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Different makes and models of Power Tiller. • Study of different components and systems of Power Tiller. • Study of power tiller controls and matching implements. 	<ul style="list-style-type: none"> • State Different makes and models of Power Tiller. • Identification of different parts and systems of power tiller. • Operation of power tiller with matching implements - roiatiller and MB Plough.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Power tiller, Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Hand tools/ Kit box	

Module 9: Demonstrate different component and systems of Plant Protection Equipment and rectify minor faults

Mapped to HLC/0232/OC9 V2.0

Terminal Outcomes:

- Demonstrate Plant Protection Equipment
- Describe use and application of Agricultural Chemicals
- Demonstrate types of sprayers & their uses, construction and function

Duration: 05:00	Duration: 25:00
<p>Theory–Key Learning Outcomes</p> <p>The students will be able to describe the followings:-</p> <ul style="list-style-type: none"> • Plant Protection Equipment • Use and application of Agricultural Chemicals. • Types of sprayers & their uses, construction and function, Types of dusters and their uses, construction and function. Safety precautions in handling of chemicals and operational techniques. Proper off-season storage. 	<p>Practical–Key Learning Outcomes</p> <p>The students will be able to demonstrate the followings:-</p> <ul style="list-style-type: none"> • Demonstrate Plant Protection Equipment • Identification of different parts of sprayers. Dismantling of sprayers, replacement of worn out parts. • Calibration and operation of sprayers for specific purposes. Identification of common faults and corrective measures.
<p>Classroom Aids:</p>	
<p>Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook</p>	
<p>Tools, Equipment and Other Requirements</p> <p>Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Engine cut models, hand tools/ Kit box</p>	



Module 10: Exhibit different component and systems of Irrigation Equipment and rectify minor faults

Mapped to AGR/0232/OC10 V2.0

Terminal Outcomes:

- State Importance of irrigation and methods of Irrigation.
- Describe types of pumps, principles of operation, their constructional details and application.
- Demonstrate estimation of head, discharge and power requirement.
- Demonstrate Sprinkler irrigation system and equipment, importance and utility
- Demonstrate drip irrigation system and equipment, importance and utility
- Demonstrate pipe fitting techniques and field layouts

Duration: 05:00	Duration: 25:00
<p>Theory–Key Learning Outcomes</p> <p>The students will be able to describe the followings:-</p> <ul style="list-style-type: none"> • Importance of irrigation and methods of Irrigation. • Types of pumps, principles of operation, their constructional details and application. • Estimation of head, discharge and power requirement laying of pipes. Sprinkler irrigation system and equipment, importance and utility. Drip irrigation system and equipment, importance and utility. Pipe fitting techniques and field layouts. 	<p>Practical–Key Learning Outcomes</p> <p>The students will be able to identify and demonstrate the followings:-</p> <ul style="list-style-type: none"> • Demonstration of different methods of Irrigation. • Identification of different types of pump sets. • Dismantling of centrifugal pump, reconditioning and assembling. Installation of a pump, prime mover, fitting of pumps, valves, pulleys. Identification of different components of sprinkler and drip irrigation systems. • Dismantling and assembling of nozzles, drips and other associated components of an irrigation system
<p>Classroom Aids:</p> <p>Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook</p>	
<p>Tools, Equipment and Other Requirements</p> <p>Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Engine cut models, Diesel Engine, Motor Pump set, Air-compressor, Hand tools/ Kit box</p>	



Module 11: Demonstrate different component and systems of electric motor used in Pump Set for Agricultural use and rectify minor faults

Mapped to AGR/0232/OC11 V2.0

Terminal Outcomes:

- Demonstrate types of electric motors used in pump sets, tube wells, threshers etc.
- Identify the selection method of electric motors.
- Demonstrate about care, maintenance and installation of electric motors.
- Demonstrate electric motor trouble shooting, periodic servicing and off-season storage
- Install electric motor, check the circuit, starter fitting and setting.
- Demonstrate safety, precautions in handling electrical appliances & motors.

Duration: 05:00	Duration: 25:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Types of electric motors used in pump sets, tube wells, threshers etc. Selection of electric motors. • Care, maintenance and installation of electric motors. • Electric motor trouble shooting, periodic servicing and off-season storage Installation of electric motor, checking of circuit, starter fitting and setting Safety, precautions in handling electrical appliances & motors. 	<p>Electric motor trouble shooting, storage and servicing.</p> <ul style="list-style-type: none"> • Demonstrate types of electric motors used in pump sets, tube wells, threshers etc. • Identify the selection method of electric motors. • Demonstrate about care, maintenance and installation of electric motors. • Demonstrate electric motor trouble shooting, periodic servicing and off-season storage. Install electric motor, check the circuit, starter fitting and setting. • Demonstrate safety, precautions in handling electrical appliances & motors.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Power Reaper, Knapsack sprayer, Power sprayer, Power thresher, Engine cut models, Diesel Engine, Motor Pump set, Air-compressor, Hand tools/ Kit box	

Module 12: Understand principles of pump set, their components, common faults and dismantling different parts.

Mapped to AGR/0232/OC12 V2.0

Terminal Outcomes:

- Trainee will be asked to demonstrate general ideas on pumps along with common faults concerned with pumps.
- Assessor will rate the trainee on his ability to dismantling and reassembly of the parts to make a complete pump set.
- Trainee will be asked to perform Alignment test for and its adjustment.

Duration: 05:00	Duration: 25:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Demonstration of diesel pump set used in agriculture. • Different types of diesel engines-idea of 2-strook & 4-strook engines- single cylinder & multi-cylinder engines. • Different parts of a diesel engine, identification by physical verification & function of each part. • Different parts of pump, Identification by physical observation & function of each part. 	<ul style="list-style-type: none"> • Practice on fitting, use of file, chisel, hammer, vice, measuring tools etc. • Practice of gas & arc welding on simple job & precautions to be taken during the work. • Idea, identification & use of different repairing jobs tools, measuring tools, special tools e.g., puller, piston ring expander, piston, ring squeezer, groove cleaner, value lifter, torque wrench, grease gun etc. their maintenance & servicing.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Engine cut models, Diesel Engine, Motor Pump set, Air-compressor, Hand tools/ Kit box	

Module 13: Calculate rough estimation and costing of repair work for each machinery

Mapped to AGR/0232/OC13 V2.0

Terminal Outcomes:

- Calculate the costing for different parts, their costs, brand names of parts, costs etc.,
- Make the report on Market survey.
- Prepare of an estimate for a repair work-overhauling of an engine etc.

Duration: 10:00	Duration: 20:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<p>Factors in Analysis of Cost of Operation:</p> <ul style="list-style-type: none"> • Fixed cost: initial cost, salvage value, useful life, depreciation, interest, taxes and insurance, housing. • Variable cost: repair and maintenance, fuel and oil consumption, wages. Theoretical and actual field capacities, field efficiency. • Calculate the costing for different parts, their costs, brand names of parts, costs etc., • Make the report on Market survey. • Prepare of an estimate for a repair work-overhauling of an engine etc. 	<ul style="list-style-type: none"> • Calculating cost per hour/per hectare of tractors, power tillers, engine, and various agricultural implements and machines. • Laying out a store, fabrication racks; familiarization with fire extinguishers, visit to a store. Calculate the costing for different parts, their costs, brand names of parts, costs etc., • Make the report on Market survey. • Prepare of an estimate for a repair work-overhauling of an engine etc.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook	
Tools, Equipment and Other Requirements	
Tractor, Power tiller, Mould Board plough, Disc plough, Rotavator, Disc Harrow, Cultivator, Multi crop seed drill, Paddy Transplanter, Power Reaper, Knapsack sprayer, Power sprayer, Mini Combine harvester, Paddle thresher, Power thresher, Engine cut models, Diesel Engine, Motor Pump set, Air-compressor, Hand tools/ Kit box	



Module 14: Able to work in real job situation with special emphasis on basic safety and hazards in this domain

Mapped to AGR/0232/OC14,V2.0

Terminal Outcomes:

Assessor will check report prepared for this component of 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 150 Hours.)

<i>Duration:00:00</i>	<i>Duration: 150:00</i>
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
	<ul style="list-style-type: none"> • Production jobs as per drawing such as furniture items. • Preparation of utility goods for domestic use by steel wire, preparation of different models with 5mm. M.S. Rods or wire for common structural items - grills, Gratings, Gates etc. • Assessor will check report prepared for this component of 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 150 Hours.)
Classroom Aids:	

Module15: Employability skills

Mapped to DGT/VSQ/N0102, v 1.0

Terminal Outcomes:

1. Demonstrate a comprehensive knowledge of constitutional values and apply them in their actions, decisions, and interactions, thereby upholding the principles of the constitution.
2. Develop proficiency in basic English skills, including reading, writing, listening, and speaking, enabling effective communication in everyday situations.
3. Exhibit proficiency in basic communication skills, including active listening, effective verbal and nonverbal communication, and clarity in expressing ideas, fostering successful interpersonal interactions.
4. Explain financial and legal literacy, including understanding key financial concepts, making informed financial decisions, and navigating legal frameworks related to personal and business finances.



5. Interpret digital tools and technologies, navigating online platforms, and practicing safe and responsible digital behavior.

- Discuss the importance of Employability Skills in meeting the job requirements. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen. Discuss 21st century skills such as Self- Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life.
- Use basic English for everyday conversation in different contexts, in person and over the telephone. Read and understand routine information, notes, instructions, mails, letters etc. written in English. Write short messages, notes, letters, e-mails etc. in English.
- Demonstrate how to communicate in a well -mannered way with others. Apply verbal and non-verbal communication etiquette and active listening techniques in various settings. Demonstrate working with others in a team
- Show how to conduct oneself appropriately with all genders and PwD.
- Select financial institutions, products and services as per requirement. Carry out offline and online financial transactions, safely and securely. identify common components of salary and compute income, expenses, taxes, investments etc.
- Show how to operate digital devices and use the associated applications and features, safely and securely. Use e-mail and social media platforms and virtual collaboration tools to work effectively. Use the features of word processor, spreadsheets and presentations. Create a biodata.
- Identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research. Identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity
- Identify different types of customers. Identify and respond to customer requests and needs in a professional manner

Classroom Aids:

Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook

Details Syllabus Content

Theory Syllabus:

CROP PRODUCTION MACHINERY

1. Tillage Implements -

Tillage definition, types and necessity; Functions and types of implements for primary and secondary tillage operations.

Constructional parts and working of Mouldboard plough, Disk Plough, Cultivators, Disk Harrow, and Bund former.



Adjustment, care and safety precautions, common faults and remedies.

2. Seeding Machinery -

Methods of sowing- drilling, dibbling, planting; implements for sowing /planting and transplanting.

Constructions and working of seed drill, planters, seed cum fertilizer drill. Adjustment, care and safety precautions, common faults and remedies.

3. Harvesting Machinery -

Conventional and mechanized harvesting Tools and Machines; Sickle, Reaper, Harvester.

Construction and working of Power Tiller operated Vertical Conveyor Reaper. Adjustment, care and safety precautions, common faults and remedies.

4. Threshing Machinery -

Types of threshers - manual and power operated.

Construction and working of hand and paddle threshers, power threshers. Brief introduction of Combine Harvester.

Adjustment, care and safety precautions, common faults and remedies of manual and power operated threshers.

ENGINE TRACTOR AND POWER TILLER

1. IC Engine -

Engine classification - CI and SI Engines, 2S and 4S Engines; working principles of the IC engines and difference between 2S & 4S, CI & SI Engines.

Brief description of Engine components.

2. Engine Systems -

Brief description of engine systems and their necessity.

Understanding of fuel system, cooling system, lubrication system, inlet and exhaust system using flow charts.

3. Tractor -

Different makes and models of Tractor.

Study of different components and systems of Tractor.

Study of tractor controls and matching implements.

4. Power Tiller -

Different makes and models of Power Tiller.



Study of different components and systems of Power Tiller.

Study of power tiller controls and matching implements.

PLANT PROTECTION AND IRRIGATION EQUIPMENTS,

ELECTRIC MOTORS

1. Plant Protection Equipment

Use and application of Agricultural Chemicals.

Types of sprayers & their uses, construction and function, Types of dusters and their uses, construction and function. Safety precautions in handling of chemicals and operational techniques. Proper off-season storage.

5 hrs.

2. Irrigation Equipment -

Importance of irrigation and methods of Irrigation.

Types of pumps, principles of operation, their constructional details and application.

Estimation of head, discharge and power requirement laying of pipes. Sprinkler irrigation system and equipment, importance and utility. Drip irrigation system and equipment, importance and utility. Pipe fitting techniques and field layouts.

3. Electric Motors-

Types of electric motors used in pump sets, tube wells, threshers etc. Selection of electric motors.

Care, maintenance and installation of electric motors.

Electric motor trouble shooting, periodic servicing and off-season storage Installation of electric motor, checking of circuit, starter fitting and setting Safety, precautions in handling electrical appliances & motors.

POST HARVEST MACHINERY

Introduction to post-harvest technology and its importance.

Definition, of different terms like cleaning, grading sorting, drying and dehydration, storage, milling, handling, packaging & transportation.

Types of commonly used cleaners and grader like air screen cleaners, rotary cleaners, vibratory screen cleaners, disc separator, indented cylinder separator spiral Separator, specific gravity separator, magnetic separator, cyclone separator, their uses and suitability to different farm produce.

Drying methods-convection drying, conduction drying, and vacuum drying their uses. Introduction to different types of commonly used hand and power opera chaff cutters. Introduction to commonly used manual and power operated maize shell and ground nut decorticators.

MANAGEMENT OF FARM EQUIPMENT

Factors in Analysis of Cost of Operation:

- ❖ Fixed cost: initial cost, salvage value, useful life, depreciation, interest, taxes and insurance, housing.



- ❖ Variable cost: repair and maintenance, fuel and oil consumption, wages. Theoretical and actual field capacities, field efficiency.

Diesel Pump Set

Course Curriculum:

- (1) Introduction.
- (2) Demonstration of diesel pump set used in agriculture.
- (3) Different types of diesel engines-idea of 2-strook & 4-strook engines- single cylinder & multi-cylinder engines.
- (4) Different parts of a diesel engine, identification by physical verification & function of each part.
- (5) Different parts of pump, Identification by physical observation & function of each part.

Detail of Practical Syllabus:

CROP PRODUCTION MACHINERY

1. Tillage Implements -
Familiarization with Primary and Secondary tillage implements Demonstration and Identification of constructional and working parts of Mould-board plough, Disk Plough, Cultivators, Disk Harrow, and Bund former. Assembling of different parts of Mould-board plough, Disk Plough 30 hrs. And Disc Harrow.
Adjusting of horizontal and vertical suction of MB Plough; Adjusting disc angles, tilt angles of disc plough and harrow.
emonstration and identification of different parts of Rototiller.
2. Seeding Machinery -
Identification of different parts of seeders, planters and seed cum fertilizer drills.
Adjustments of furrow openers, replacement of worn-out / damaged parts of seed drill/ seed cum fertilizer drills.
Calibration of seed drill/ seed cum fertilizer drills. Familiarization of rice transplanters.
Operation of seed drill/ seed cum fertilizer drills and rice transplanters.
3. Harvesting Machinery -
Identification of different parts of Vertical Conveyor Reaper.
Adjustments of cutter bar, registration and alignment.
Operation, care **and** maintenance of Vertical Conveyor Reaper.
4. Threshing Machinery -
Identification of different parts of power thresher. Dismantling and assembling of power thresher.
Identification of mini combine/ combine harvester. Operation of mini combine.



ENGINE, TRACTOR AND POWER TILLER

1. IC Engine - Identification of Engine parts.
Cleaning and inspection of various parts.
Engine overhauling- dismantling, cleaning & adjusting and assembling.
2. Engine Systems -
Inspection of Air cleaning System, fuel system, cooling system, lubrication systems for their proper functioning.
Engine trouble shooting; understanding possible causes and their solution.
3. Tractor -
Identification of different parts and systems of tractor.
Operation of tractor without implements.
Implement hitching and tractor operation.
4. Power Tiller -
Identification of different parts and systems of power tiller.
Operation of power tiller with matching implements - roiatiller and MB Plough.

PLANT PROTECTION AND IRRIGATION EQUIPMENTS,

ELECTRIC MOTORS

1. Plant Protection Equipment
Identification of different parts of sprayers. Dismantling of sprayers, replacement of worn out parts.
Calibration and operation of sprayers for specific purposes. Identification of common faults and corrective measures.
2. Irrigation Equipment
Demonstration of different methods of Irrigation.
Identification of different types of pump sets.
Dismantling of centrifugal pump, reconditioning and assembling. Installation of a pump, prime mover, fitting of pumps, valves, pulleys. Identification of different components of sprinkler and drip irrigation systems.
Dismantling and assembling of nozzles, drips and other associated components of an irrigation system.
3. Electric Motors
Use of Voltmeters, ammeters, mustimeters. Checking of a circuit.
Electric motor trouble shooting, storage and servicing.

POST HARVEST MACHINERY

1. Cleaning and grading machinery
Identification of different parts and components of commonly used cleaners and graders, their adjustments, operation and functions.



Identification of different parts and components of drying equipment/ machinery, their adjustments, operation and functions.

Safety and precaution in use of drying equipment's, cleaners and graders.

2. Drying Equipment/Machinery

Familiarization and identification of different parts of components of commonly available different type of dryer including solar dryers, function of different parts and adjustment for their efficient use.

3. Chaff Cutters

Familiarization and identification of different components of commonly used chaff cutters, function of different parts and their adjustment for efficient use.

Common faults and corrective measures. Safety and precautions in use of chaff cutters.

4. Maize Sheller and Groundnut Decorticators

Familiarization and identification of different components of commonly used maize shellers, function of different parts for efficient use.

Common faults and their rectification.

Safety and precaution in use of maize shellers and groundnut decorticator

MANAGEMENT OF FARM EQUIPMENT

Calculating cost per hour/per hectare of tractors, power tillers, engine, and various agricultural implements and machines.

Laying out a store, fabrication racks; familiarization with fire extinguishers, visit to a store.

Note The Teacher / Instructor /Trainer may arrange the sequence of items of syllabus properly so as to convey the required knowledge to the trainees according to technically represent table and acceptability - both in Theory and Practical.

Diesel Pump Set

Shop Practice:

- (1) Practice on fitting, use of file, chisel, hammer, vice, measuring tools etc.
- (2) Practice of gas & arc welding on simple job & precautions to be taken during the work.
- (3) Idea, identification & use of different repairing jobs tools, measuring tools, special tools e.g., puller, piston ring expander, piston, ring squeezer, groove cleaner, valve lifter, torque wrench, grease gun etc. their maintenance & servicing.

Fuels & lubricants:

Different types, qualities of fuels, lubricants and their specific applications.

Pump:



- (1) General ideas on pumps; common faults, dismantling of a pump.
- (2) Assembly of the parts to make a complete pump set.
- (3) Alignment test for pump & engine and its adjustment.

Engine:

- (1) Dismantling of engine, cleaning of parts, fault-detection, rectification and refitting.

Parts, e.g., couplings, pipes, glands, gaskets etc. defects identification & repair.

Complete overhauling of a pump set, dismantling, different parts, defect identification, minor repairing, replacement of damaged parts, refitting.

Preventive Maintenance:

- (1) Preventive maintenance schedule-precaution.
- (2) Trouble shooting in running condition.

Estimation and costing:

- (1) Costing for different parts, their costs, Brand names of parts, costs etc., and Market survey.
- (2) Preparation of an estimate for a repair work-overhauling of an engine etc.

Syllabus of Employability Skill:

Introduction to Employability Skills Duration: 1.5 Hours

After completing this programme, participants will be able to:

Discuss the Employability Skills required for jobs in various industries

List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship Duration: 1.5 Hours

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

Show how to practice different environmentally sustainable practices.

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

Discuss importance of relevant 21st century skills.

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.

Describe the benefits of continuous learning.

Basic English Skills Duration: 10 Hours

Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone

Read and interpret text written in basic English

Write a short note/paragraph / letter/e-mail using basic English

Career Development & Goal Setting Duration: 2 Hours

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

Communication Skills Duration: 5 Hours

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



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

Diversity & Inclusion Duration: 2.5 Hours

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

Financial and Legal Literacy Duration: 5 Hours

Outline the importance of selecting the right financial institution, product, and service
 Demonstrate how to carry out offline and online financial transactions, safely and securely
 List the common components of salary and compute income, expenditure, taxes, investments etc.
 Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 10 Hours

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

Entrepreneurship Duration: 7 Hours

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

Customer Service Duration: 5 Hours

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

Getting Ready for apprenticeship & Jobs Duration: 8 Hours

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

List of Tools, Equipment's and other requirements:

LIST OF GENERAL TOOLS & EQUIPMENTS: (For Batch of 30 Candidates)			
S No.	Name of the Tool & Equipment	Specification	Quantity
1.	Laptop & LCD Projector,	Standard & available size	1 no each

2.	White board, Marker,	Minimum 5'X4'	2 no each
3.	Record book, Balanced Feed Chart,	Standard & available size	2 no each
4.	Public address system	-Do-	1 no

N.B.: To conduct Practical for trainees on related trade/discipline, a farm machinery shed with the following machines and implements are prerequisite for hands-on skill development in training.

S No.	Name of the Farm Equipment's	Specification	Quantity
1.	Farm Machinery shed	Space: 25'X40'.	1000 Sqft.
2.	Tractor	35-50 HP	1 no
3.	Power tiller	12-16 HP	1 no
4.	Mould Board plough	2-bottom	1 no
5.	Disc plough	2-bottom	1 no
6.	Rotavator	1.8 m width	1 no
7.	Disc Harrow	2-gang; 11-13 disc	1 no
8.	Cultivator	9-11 tines	1 no
9.	Multi crop seed drill	9-11 rows	1 no
10.	Paddy Transplanter	6-8 row	1 no
11.	Power Reaper	Self-propelled	1 no
	Knapsack sprayer	14 litre,	2 nos
	Power sprayer	Battery operated	2 nos
12.	Mini Combine harvester	1.2-1.5 m width	1 no
13.	Paddle thresher	Standard	1 no
14.	Power thresher	Standard	1 no
15.	Engine cut models	Laboratory standard	4 nos
16.	Diesel Engine	5 hp	1 no
17.	Motor	1-2 hp	1 no
18.	Pump set	Centrifugal	1 no
19.	Air-compressor	portable	1 no
20.	Hand tools/ Kit box	Standard	4 nos

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
CTS/ATS	Mechanic agricultural machinery	3	Operation & Maintenance of Agriculture Machineries	1	Trainer on operations of Agriculture machineries	NA
Diploma	Agricultural/Mechanical engineering	2		1		
B.E./B.Tech	Agricultural/Mechanical engineering	1		1		

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Service Assistant (Agriculture Machineries)" mapped to QP: STC - AGR/NSQF-2022/0232". Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, v2.0". Minimum accepted score is 80%

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
CTS/ATS	Mechanic agricultural machinery	3	Operation & Maintenance of Agriculture Machineries	1	Assessment of Agriculture sector job roles on agri machineries	NA
Diploma	Agricultural Engineering	2		1		
B.E./B.Tech	Agricultural Engineering	1		1		

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Service Assistant (Agriculture Machineries)" mapped to QP: STC - AGR/NSQF-2022/0232". Minimum accepted score is 80%.	Recommended that the Assessor is certified for the Job Role: "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, v2.0". Minimum accepted score is 80%



Assessment Strategy

Assessment will be based on the concept of Independent Assessors empaneled with West Bengal State Council of Technical & Vocational Education & Skill Development (WBSCT&VE&SD), identified, selected, trained and certified on Assessment techniques. These Assessors would be aligned to assess as per the laid down criteria.

WBSCT&VE&SD would conduct assessment only at the training centers or designated testing centers authorized by WBSCT&VE&SD.

Ideally, the assessment will be a continuous process comprising of two distinct steps:

- A. Continuous assessment by Trainers
- B. Term end /Final Assessment by WBSCT&VE&SD

Each National Occupational Standard (NOS) in the respective QPs will be assigned weightage. Each Performance Criteria in the NOS will be assigned marks for theory and/or practical based on relative importance and criticality of function.

This will facilitate preparation of question bank / paper sets for each of the QPs. Each of these papers sets/question banks created by subject matter experts through WBSCT&VE&SD, especially with regard to the practical test and the defined tolerances, finish, accuracy etc.

The following tools are proposed to be used for final assessment:

- i. Written Test: This will comprise of (i) True/False Statements and/or (ii) Multiple Choice Questions and/or (iii) Matching Type Questions. Online system for this will be preferred.
- ii. Practical Test: This will comprise a test job to be prepared as per project briefing following appropriate working steps, using necessary tools, equipment and instruments. Through observation it will be possible to ascertain candidate's aptitude, attention to details, quality consciousness etc.
- iii. Structured Viva-voce: This tool will be used to assess the conceptual understanding and the behavioral aspects as regards the job role and the specific task at hand.

Marks distribution as per outcome

Course Name	Sr No	Outcome No.	Outcome Name	Th Hrs	Pr Hrs	Total marks Th	Total marks Pr
Service Assistant (Agriculture Machineries)	1	AGR/0232/OC1, V2.0	Apply Safe Working Practices	10	20	14	30
	2	AGR/0232/OC2, V2.0	Identify and select various agricultural machineries and describe the uses of each.	10	20	14	30
	3	AGR/0232/OC3, V2.0	Describe the operations of Tillage implements, demonstrate its working, identify the faults and repair.	10	20	14	30
	4	AGR/0232/OC4, V2.0	Describe the operations of seeding machinery, its working, identify the faults and repair.	10	20	14	30
	5	AGR/0232/OC5, V2.0	Recognize different components, different faults, their cause & repair minor faults concern with Harvesting machineries and Threshing machineries	5	25	10	50
	6	AGR/0232/OC6, V2.0	Classify IC engines used in agriculture, explain the working of engine system, fuel system, cooling system, lubricating system, inlet & exhaust system with the help of flow charts	5	25	10	50
	7	AGR/0232/OC7, V2.0	Identify and Describe different component and systems of Tractor and repair minor faults	5	25	10	50
	8	AGR/0232/OC8, V2.0	Identify and Recognize different component and systems of Power Tiller and rectify minor faults	5	25	10	50
	9	AGR/0232/OC9, V2.0	Demonstrate different component and systems of Plant Protection Equipment and rectify minor faults	5	25	10	50
	10	AGR/0232/OC10, V2.0	Exhibit different component and systems of Irrigation Equipment and rectify minor faults	5	25	10	50

11	AGR/0232/OC1 1,V2.0	Demonstrate different component and systems of electric motor used in Pump Set for Agricultural use and rectify minor faults	5	25	10	50
12	AGR/0232/OC1 2,V2.0	Understand principles of pump set, their components, common faults and dismantling different parts.	5	25	10	50
13	AGR/0232/OC1 3,V2.0	Calculate rough estimation and costing of repair work for each machinery	10	20	14	30
14	AGR/0232/OC1 4,V2.0	Work in real job situation with special emphasis on basic safety and hazards in this domain.	0	150	0	250
15	DGT/VSQ/N01 02	Employability Skills 60 Hrs	60		50	
TOTAL Theory 90 Hrs, Practical 300 Hrs, Employability Skill 60 Hrs, OJT 150 Hrs)					200	800

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to Be known and/or understood in order to accomplish or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training Outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT(M)	On-the-job training(Mandatory);trainees are mandated to complete specified hours of training on site
OJT(R)	On-the-job training(Recommended);trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psycho motor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards