

Model Curriculum

Micro Irrigation Technician

SECTOR: AGRICULTURE & ALLIED
SUB-SECTOR: AGRICULTURE CROP PRODUCTION
OCCUPATION: PRECISION FARMING
REF ID: AGR/Q1002, V1.0
NSQF LEVEL: 4



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Micro Irrigation Technician

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Micro Irrigation Technician", in the "Agriculture & Allied" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Micro Irrigation Technician		
Qualification Pack Name & Reference ID. ID	AGR/Q1002, v1.0		
Version No.	1.0	Version Update Date	
Pre-requisites to Training	8 th Standard Appeared or Passed		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Identify/familiarize with tools and equipments: Identification, selection and use of tools and components • Design and layout Micro irrigation system: Crop nature, soil characteristic, geography, water requirement, water source availability, designing and lay out etc. • Install Micro Irrigation System: Identify, select and use components and tools for Micro Irrigation System installation • Handle routine services of Tractor: checking of all the parts of the Micro irrigation system, day to day maintenance • Care and maintenance: check and set the standards, regular check, carry out minor repairs, etc. <p>Practice health & safety at the work place: Well versed with health and safety measures in terms of personal safety and others as well.</p>		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Micro Irrigation 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 Micro Irrigation in India Understand Role of a Micro Irrigation Technician Learn Basic skills of communication Learn Basic reading capabilities to enable reading of signs, notices and/or cautions at site. 	Laptop, white board, marker, projector
2	Designing and layout of Micro Irrigation System Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 40:00 Corresponding NOS Code AGR/ N1004	<ul style="list-style-type: none"> Study the basics of crop cultivation such as spacing, water requirement, spacing of the crop stand, nature of rooting etc. Familiarize with Sprinklers, Foggers & Misters Familiarize with the Principles of Micro Irrigation System Design Micro Irrigation system Plan the layout for Micro Irrigation System Handle the site deviation 	Laptop, white board, marker, projector, Drawing Sheet, Chart Paper, Pencil, Eraser, Colour Marker
3	Installation of Micro Irrigation Systems Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 40:00 Corresponding NOS Code AGR/ N1005	<ul style="list-style-type: none"> Identify, select, use the appropriate tools for Installation Identify, select and use the Micro Irrigation Components for installation Install the error free Micro Irrigation System Check the whole system after installation Guide and train the farmers on installation of the system Guide Farmers on how to retrieve the system after harvest and again laying the pipelines. Gain knowledge about Sprinklers, micro sprinklers and its components Study the different components of MIS and its uses 	Laptop, white board, marker, projector, HDPE Pipe, PVC Pipe, Disk Filter, Screen Filter, Sand Filter, Drip Line, Ball Valve, Service Saddle, cutter, Punching Machine, Pressure Gauge, Fertilizer Tank/ Ventury, End Cap, Valve, Sprinkalar With Stand and Micro Tube
4	Maintenance of Micro Irrigation System Theory Duration (hh:mm)	<ul style="list-style-type: none"> Check and identify the trouble shooting problems occur in the farmer's field. Maintaining the micro irrigation system. Address the common problems that occur in the process 	Laptop, white board, marker, projector, Different Size of Spanner,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	20:00 Practical Duration (hh:mm) 20:00 Corresponding NOS Code AGR/N1006	<ul style="list-style-type: none"> • System cleaning as per the field situation. • Fixing of clogging problems in system. • Understand the measures to cleaning of micro irrigation system. • Establish the effective working relationship. 	
5	Maintain Health & Safety at the work place Theory Duration (hh:mm) 15:00 Practical Duration (hh:mm) 20:00 Corresponding NOS Code AGR/N9903	<ul style="list-style-type: none"> • Maintain a clean & efficient workplace • Render appropriate emergency procedures • Reporting time to time to appropriate person. • Practice General safety and first aid 	Laptop, white board, marker, projector, safety shoes, first aid box
	Total Duration: Theory Duration (hh:mm) 80:00 Practical Duration (hh:mm) 120:00	Unique Equipment Required: Laptop, white board, marker, projector, HDPE Pipe, PVC Pipe, Disk Filter, Screen Filter, Sand Filter, Drip Line, Ball Valve, Service Saddle, cutter, Punching Machine, Pressure Gauge ,Fertilizer Tank/ Ventury, End Cap, Valve, Sprinkler With Stand and Micro Tube, Chart Paper, Pencil, Eraser, Colour Marker, Different Size of Spanner, shoes, goggles, fire extinguisher, first aid box	

Grand Total Course Duration: **200 Hours, 0 Minutes**

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

Trainer Prerequisites for Job role: "Micro Irrigation Technician" mapped to Qualification Pack: "AGR/Q1002, v1.0"

Sr. No.	Area	Details
1	Description	Trainer is responsible for educating the trainees - Installation, Testing, Commissioning of Micro Irrigation System at field level
2	Personal Attributes	Trainer should be Subject Matter Expert. He/ she should have good communication, leadership, observation and practical oriented skills
3	Minimum Educational Qualifications	Bachelor Degree
4a	Domain Certification	Certified for Job Role: "Micro Irrigation Technician" mapped to QP: <u>"AGR/Q1002, v1.0"</u> . Minimum accepted score as per respective SSC guidelines.
4b	Platform Certification	Certified for the Job Role: "Trainer", mapped to the Qualification Pack: "SSC/Q1402". Minimum accepted score is 70%
5	Experience	<ul style="list-style-type: none"> - M. Tech Agri (Farm Mechanization) with 1 Year experience - B.Tech (Farm Mechanization) in Agri with 3 Years experience - Any Graduate with 5+ years experience in relevant field - Any +2 having 7/8 Years of Experience in Micro Irrigation

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Micro Irrigation Technician
Qualification Pack	AGR/Q1002, v1.0
Sector Skill Council	Agriculture

Sr. No.	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 centre (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	The marks are allocated PC wise; however, every NOS will carry a weight age in the total marks allocated to the specific QP

Assessable Outcome	Assessment Criteria	Total Mark (225)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. AGR / N 1004 - Designing and Layout of Micro Irrigation System	PC1. Identify the characteristics of the soil, climatic conditions, land gradient, crop etc., essential for designing the system	50	10	6	4
	PC2. Follow Micro Irrigation Principles in the design of the Micro Irrigation System in the field		10	5	5
	PC3. Layout Irrigation System as per the legend used in drawing.		10	5	5
	PC4. Handle the site deviation if required.		10	5	5
	PC5. Take note of basics of crop cultivation such as spacing, water requirement, spacing of the crop stand, nature of rooting etc.,		10	5	5
	Total		50	26	24
2. AGR / N 1005 – Installation of Micro Irrigation System	PC1. Identify various components of MIS	100	15	10	5
	PC2. Identify f various parts of the MI units for timely fitting and installation		15	10	5
	PC3. Use right components at the right place for better installation		10	10	0
	PC4. Do quick and error free installation of the MIS		30	15	15
	PC5. Test and Commission the MIS after installation		10	5	5
	PC6. Train farmers on using the system		10	0	10
	PC7. Explain farmers on how to retrieve the system after harvest and again laying the pipelines		10	0	10
	Total		100	50	50

3. AGR / N 1006 – Maintenance of Micro Irrigation System	PC1. Identify various problems farmer may come across in the farmer's field.	50	10	6	4
	PC2. Address the common problems during the installation of the system		10	6	4
	PC3. Rectify common problem in MI System faced by farmers		5	5	0
	PC4. Do System cleaning as per the field situation in terms of type of soil and its other characteristics.		10	3	7
	PC5. Fix the system clogging due to fertigation		5	2	3
	PC6. Follow various maintenance guidelines prescribed for a given micro irrigation system		10	3	7
	Total		50	25	25
4. AGR/N9903 Maintain health & Safety at the work place	PC1. undertake basic safety checks before operation of all machinery and vehicles and hazards are reported to the appropriate supervisor	25	5	3	2
	PC2. work for which protective clothing or equipment is required is identified and the appropriate protective clothing or equipment is used in performing these duties in accordance with workplace policy.		2	2	0
	PC3. read and understand the hazards of use and contamination mentioned on the labels of pesticides/fumigants etc		1	0	1
	PC4. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practice.		1	1	0
	PC5. use equipment and materials safely and correctly and return the same to designated storage when not in use		4	2	2
	PC6. dispose of waste safely and correctly in a designated area		3	2	1
	PC7. recognise risks to bystanders and take action to reduce risk associated with jobs in the workplace		1	0	1

PC8. perform your work in a manner which minimizes environmental damage all procedures and work instructions for controlling risk are followed closely.			1	1	0
PC9. report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger.			1	0	1
PC10. follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to emergency.			1	0	1
PC11. follow emergency procedures to company standard / workplace requirements			1	0	1
PC12. use emergency equipment in accordance with manufacturers' specifications and workplace requirements			1	0	1
PC13. provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques			1	1	0
PC14. recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate			1	0	1
PC15. report details of first aid administered in accordance with workplace procedures.			1	0	1
			25	12	13
	Total	225	225	113	112
	Percentage Weightage:			50%	50%
	Minimum Pass% to qualify (aggregate):			60%	