









Micro-Irrigation Field Assistant

QP Code: AGR/Q1008

Version: 1.0

NSQF Level: 2

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Contents

AGR/Q1008: Micro-Irrigation Field Assistant	
Brief Job Description	
Applicable National Occupational Standards (NOS)	
Compulsory NOS	3
Qualification Pack (QP) Parameters	3
AGR/N1042: Install micro-irrigation system	
AGR/N1043: Perform repair and maintenance of micro-irrigation system	10
DGT/VSQ/N0101: Employability Skills (30 Hours)	15
Assessment Guidelines and Weightage	20
Assessment Guidelines	20
Assessment Weightage	21
Acronyms	22
Glossary	23









AGR/Q1008: Micro-Irrigation Field Assistant

Brief Job Description

A Micro-Irrigation Field Assistant is responsible for planning, installing, testing and commissioning microirrigation systems in the field to ensure uninterrupted supply of water for farm operations.

Personal Attributes

The individual must be physically fit to work for long durations. The person must have problem-solving skills with an ability to work collaboratively with others to achieve the work objectives. Ability to read, write and communicate clearly are the other important attributes required in this job role.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

- 1. AGR/N1042: Install micro-irrigation system
- 2. AGR/N1043: Perform repair and maintenance of micro-irrigation system
- 3. DGT/VSQ/N0101: Employability Skills (30 Hours)

Qualification Pack (QP) Parameters

Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Precision Farming
Country	India
NSQF Level	2
Credits	7
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3142.0101
Minimum Educational Qualification & Experience	No formal education prescribed with NA of experience
Minimum Level of Education for Training in School	10th Class









Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	29/09/2026
NSQC Approval Date	29/09/2023
Version	1.0
Reference code on NQR	QG-02-AG-01017-2023-V1-ASCI
NQR Version	1.0









AGR/N1042: Install micro-irrigation system

Description

This OS unit is about installing, testing and starting the operations of a micro-irrigation system.

Scope

The scope covers the following:

- Install the micro-irrigation system
- Carry out post-installation activities
- Optimise resource utilisation

Elements and Performance Criteria

Install the micro-irrigation system

To be competent, the user/individual on the job must be able to:

- **PC1.** create holes in the water tubes as per the requirement
- **PC2.** lay the water tubes in the field as per the plan
- **PC3.** secure the water tubes on the ground using ground stakes/ conduit brackets
- **PC4.** install emitters/ sprayers/ foggers at the identified spots
- **PC5.** set up the irrigation timer
- **PC6.** apply cap on the other end of the main tube
- **PC7.** connect the main water tube to the water outlet at the farm
- PC8. connect vacuum breaker with the pressure regulator to prevent backflow of water
- **PC9.** install the water-pump at the main water supply
- **PC10.** install water filter to prevent silt and dirt from getting in the water tubes
- **PC11.** fix flush valves at the identified spots to facilitate regular flushing of any deposits in the water tubes
- **PC12.** install the fertigation equipment to deliver water mixed with fertilizers to plants
- PC13. run clean water through the tubes to remove any dirt and debris inside them
- **PC14.** test the micro-irrigation system to see if it functions as expected
- PC15. perform troubleshooting for any issues identified with the micro-irrigation system
- **PC16.** cover the water tubes with soil/ mulch as per the plan

Carry out post-installation activities

To be competent, the user/individual on the job must be able to:

- **PC17.** guide the farmer regarding the functioning, minor repair and maintenance and maintenance schedule of the micro-irrigation system
- **PC18.** guide the farmer regarding the retrieval of micro-irrigation system after harvesting and installation before planting crop
- **PC19.** carry out necessary documentation as per the organisational policy

Optimise resource utilisation









To be competent, the user/individual on the job must be able to:

- PC20. optimise the usage of water/ electricity/ relevant materials in various tasks and processes
- PC21. connect the electrical tools and equipment safely and turn off when not in use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- **KU1.** relevant documentation requirements
- **KU2.** the process for the installation of a micro-irrigation system
- **KU3.** various types of fittings and equipment necessary for the installation of a micro-irrigation system such as pumps and tubes
- **KU4.** use of the relevant tools and equipment
- **KU5.** how to troubleshoot various issues experienced with a micro-irrigation system
- **KU6.** basic hydraulics like pressure, flow etc.
- KU7. concept of fertigation, its advantages and the process to install a fertigation system
- KU8. the SOP for testing the functioning of a micro-irrigation system

Generic Skills (GS)

User/individual on the job needs to know how to:

- **GS1.** prepare work-related notes and documents
- **GS2.** listen attentively to understand the client requirements
- GS3. communicate politely and professionally
- **GS4.** read the relevant articles to get latest updates about the field of the work
- **GS5.** take quick decision to deal with any emergencies/ accidents
- **GS6.** plan and prioritise tasks to ensure timely completion
- GS7. co-ordinate with co-workers to achieve work objectives
- **GS8.** identify possible disruptions to work and take preventive measures
- **GS9.** apply domain knowledge and experience to improve the quality of work









Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Install the micro-irrigation system	15	25	-	15
PC1. create holes in the water tubes as per the requirement	-	-	-	-
PC2. lay the water tubes in the field as per the plan	-	-	-	-
PC3. secure the water tubes on the ground using ground stakes/ conduit brackets	-	-	-	-
PC4. install emitters/ sprayers/ foggers at the identified spots	-	-	-	-
PC5. set up the irrigation timer	-	-	-	-
PC6. apply cap on the other end of the main tube	-	-	-	-
PC7. connect the main water tube to the water outlet at the farm	-	-	-	-
PC8. connect vacuum breaker with the pressure regulator to prevent backflow of water	-	-	-	-
PC9. install the water-pump at the main water supply	-	-	-	-
PC10. install water filter to prevent silt and dirt from getting in the water tubes	-	-	-	-
PC11. fix flush valves at the identified spots to facilitate regular flushing of any deposits in the water tubes	-	-	-	-
PC12. install the fertigation equipment to deliver water mixed with fertilizers to plants	-	-	-	-
PC13. run clean water through the tubes to remove any dirt and debris inside them	-	-	-	-
PC14. test the micro-irrigation system to see if it functions as expected	-	-	-	-
PC15. perform troubleshooting for any issues identified with the micro-irrigation system	-	-	-	-









Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. cover the water tubes with soil/ mulch as per the plan	-	-	-	-
Carry out post-installation activities	10	10	-	10
PC17. guide the farmer regarding the functioning, minor repair and maintenance and maintenance schedule of the micro-irrigation system	-	-	-	-
PC18. guide the farmer regarding the retrieval of micro-irrigation system after harvesting and installation before planting crop	-	-	-	-
PC19. carry out necessary documentation as per the organisational policy	-	-	-	-
Optimise resource utilisation	5	5	-	5
PC20. optimise the usage of water/ electricity/ relevant materials in various tasks and processes	-	-	-	-
PC21. connect the electrical tools and equipment safely and turn off when not in use	-	-	-	-
NOS Total	30	40	-	30









National Occupational Standards (NOS) Parameters

NOS Code	AGR/N1042
NOS Name	Install micro-irrigation system
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Precision Farming
NSQF Level	2
Credits	5
Version	1.0
Last Reviewed Date	29/09/2023
Next Review Date	29/09/2026
NSQC Clearance Date	29/09/2023









AGR/N1043: Perform repair and maintenance of micro-irrigation system

Description

This OS unit is about performing regular repair and maintenance of a micro-irrigation system.

Scope

The scope covers the following:

- Perform repair and maintenance
- Perform waste management

Elements and Performance Criteria

Perform repair and maintenance

To be competent, the user/individual on the job must be able to:

- **PC1.** examine the emitters for the required level of pressure
- **PC2.** check the fertigation system and irrigation timer for correct functioning
- PC3. remove the flush valves and water tube cap as per the SOP
- PC4. run clean water through the water tubes to flush any deposits inside them
- **PC5.** clean the water filter to remove any blockage inside it
- **PC6.** carry out chlorine/ acid treatment to remove salts such carbonates, bi-carbonates, iron, calcium, etc.
- **PC7.** set the emitters/ foggers/ sprinklers in the correct position for effective supply of water to the plants
- **PC8.** identify damaged or malfunctioning micro-irrigation system components such as emitter, sprayer, fogger, water filter, water-tubes, etc.
- PC9. replace the damaged or malfunctioning components as per the SOP
- PC10. maintain the record of maintenance
- **PC11.** schedule the next maintenance as per the maintenance schedule

Perform waste management

To be competent, the user/individual on the job must be able to:

- **PC12.** segregate waste into different categories
- **PC13.** dispose the non-recyclable waste appropriately
- **PC14.** deposit the recyclable and reusable material at the identified location

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- **KU1.** relevant record-keeping requirements
- **KU2.** the SOP for the repair and maintenance of a micro-irrigation system
- **KU3.** the process to detect faults and damages in a micro-irrigation system









- **KU4.** common repair and maintenance needs of a micro-irrigation installation
- **KU5.** approved cleaning material for use on a micro-irrigation system
- **KU6.** correct handling of the relevant repair and maintenance tools and equipment
- **KU7.** common faults with a fertigation system
- **KU8.** appropriate maintenance schedule for micro-irrigation system
- **KU9.** methods of recycling and disposing different types of waste
- KU10. common sources of pollution and the ways to minimise it

Generic Skills (GS)

User/individual on the job needs to know how to:

- **GS1.** communicate clearly and politely
- GS2. evaluate all solutions to a problem before selecting the best one
- **GS3.** identify problems that may disrupt work and take preventive action within the limits of authority
- **GS4.** maintain work-related records
- **GS5.** read the relevant literature to get updated information about the field of work
- GS6. plan and schedule tasks for effective time-management
- **GS7.** listen attentively to understand the information/ instructions being given









Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Perform repair and maintenance	20	25	-	20
PC1. examine the emitters for the required level of pressure	-	-	-	-
PC2. check the fertigation system and irrigation timer for correct functioning	-	-	-	-
PC3. remove the flush valves and water tube cap as per the SOP	-	-	-	-
PC4. run clean water through the water tubes to flush any deposits inside them	-	-	-	-
PC5. clean the water filter to remove any blockage inside it	-	-	-	-
PC6. carry out chlorine/ acid treatment to remove salts such carbonates, bi-carbonates, iron, calcium, etc.	-	-	-	-
PC7. set the emitters/ foggers/ sprinklers in the correct position for effective supply of water to the plants	-	-	-	-
PC8. identify damaged or malfunctioning micro-irrigation system components such as emitter, sprayer, fogger, water filter, water-tubes, etc.	-	-	-	-
PC9. replace the damaged or malfunctioning components as per the SOP	-	-	-	-
PC10. maintain the record of maintenance	-	-	-	-
PC11. schedule the next maintenance as per the maintenance schedule	-	-	-	-
Perform waste management	10	15	-	10
PC12. segregate waste into different categories	-	-	-	-
PC13. dispose the non-recyclable waste appropriately	-	-	-	-
PC14. deposit the recyclable and reusable material at the identified location	-	-	-	-









Assessment Criteria for Outcomes	Theory	Practical	Project	Viva
	Marks	Marks	Marks	Marks
NOS Total	30	40	-	30









National Occupational Standards (NOS) Parameters

NOS Code	AGR/N1043
NOS Name	Perform repair and maintenance of micro-irrigation system
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Precision Farming
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	29/09/2023
Next Review Date	29/09/2026
NSQC Clearance Date	29/09/2023









DGT/VSQ/N0101: Employability Skills (30 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following:

- Introduction to Employability Skills
- Constitutional values Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

To be competent, the user/individual on the job must be able to:

PC1. understand the significance of employability skills in meeting the job requirements

Constitutional values - Citizenship

To be competent, the user/individual on the job must be able to:

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

To be competent, the user/individual on the job must be able to:

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

To be competent, the user/individual on the job must be able to:

PC4. speak with others using some basic English phrases or sentences

Communication Skills

To be competent, the user/individual on the job must be able to:

PC5. follow good manners while communicating with others

PC6. work with others in a team









Diversity & Inclusion

To be competent, the user/individual on the job must be able to:

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

To be competent, the user/individual on the job must be able to:

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

To be competent, the user/individual on the job must be able to:

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

To be competent, the user/individual on the job must be able to:

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

To be competent, the user/individual on the job must be able to:

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

To be competent, the user/individual on the job must be able to:

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services









- **KU10.** how to compute income and expenses
- **KU11.** importance of maintaining safety and security in financial transactions
- KU12. different legal rights and laws
- **KU13.** how to operate digital devices and applications safely and securely
- KU14. ways to identify business opportunities
- KU15. types of customers and their needs
- KU16. how to apply for a job and prepare for an interview
- **KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

User/individual on the job needs to know how to:

- **GS1.** communicate effectively using appropriate language
- GS2. behave politely and appropriately with all
- **GS3.** perform basic calculations
- **GS4.** solve problems effectively
- **GS5.** be careful and attentive at work
- **GS6.** use time effectively
- **GS7.** maintain hygiene and sanitisation to avoid infection









Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
Constitutional values – Citizenship	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	1	3	-	-
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
Basic English Skills	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
Communication Skills	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
Diversity & Inclusion	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
Financial and Legal Literacy	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-









Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
Essential Digital Skills	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
Entrepreneurship	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
Customer Service	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-









National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	18/02/2025
Next Review Date	18/02/2028
NSQC Clearance Date	18/02/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

- 1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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 these criteria.
- 5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
- 6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level: 50









(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
AGR/N1042.Install micro- irrigation system	30	40	-	30	100	70
AGR/N1043.Perform repair and maintenance of micro-irrigation system	30	40	-	30	100	25
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	5
Total	80	110	-	60	250	100









Acronyms

NOS	National Occupational Standard(s)		
NSQF	National Skills Qualifications Framework		
QP	Qualifications Pack		
TVET	Technical and Vocational Education and Training		
PwD	Persons with Disabilities		
PPE	Personal Protective Equipment		
PPE	Personal Protective Equipment		
PPE	Personal Protective Equipment		









Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.









Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.