ASSESSOR GUIDE

Irrigation

Title:	**Schedule the Operation and Maintenance of Irrigation Systems**						
Applied Title:	**Schedule the Operation and Maintenance of Irrigation Systems for Subtropical Fruit Production**						
Field:	Agriculture and Nature Conservation						
Sub-Field:	Primary Agriculture						
SETA (SGB):	AgriSETA						
Skills Area:	Irrigation						
Context:	Subtropical fruit Production						
US No:	116317	**Level:**	4	**Credits:**	3	**Notional Hours:**	30
Author:	F. Kruger (BSc Agric (Mechanised Agriculture))						
Adaptation:	T. Bekker						

NQF Level 4

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P.O. Box 461, Hillcrest, 3650
(031) 313-3364

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Table of Contents

Directions

Please Note: There is a separate assessment guide for the learner. The learner must use this guide to prepare himself / herself for the assessment.

This assessment guide contains all necessary activities and instructions that will enable the assessor and learner to gather evidence of the learner's competence as required by the unit standard. This guide was designed to be used by a trained and accredited assessor who is registered to assess this specific unit standard as per the requirements of the AgriSETA ETQA.

Prior to the delivery of the program the facilitator and assessor must familiarise themselves with content of this guide, as well as the content of the assessment guide for learners.

The assessor, facilitator and learner must plan the assessment process together, in order to offer the learner the maximum support, and the opportunity to reflect competence.

The policies and procedures that are applicable during the execution of this assessment are available on the website of the Citrus Academy, contained in a document named Policies and Procedures for Assessment, and must be strictly adhered to. The assessor must familiarise himself with this document before proceeding.

This guide provides step-by-step instructions for the assessment process of:

US No:	116317	**Level:**	4	**Credits:**	3

The step-by-step instructions agree and are conducted in concert with the steps described in the learner assessment guide. The steps are as follows:

Step	***Description***	***Timeframe***
1	Learner assessment contract	Before delivery of program
2	Learner Declaration of Authenticity	Before delivery of program
3	Diagnostic Assessment of Learning Assumed to be in Place	Before delivery of program
4	Assessment Plan for Gathering of Evidence	Before delivery of program
5	Learner Formative Assessment Activities	During delivery of program, assessment after delivery of program
6	Report Writing	After delivery of program
7	Integrated Summative Assessment Tool	After delivery of program
8	Re-assessment Procedures	After completion of assessment
9	Documentation	After completion of assessment
10	Administration and Completion of Portfolio of Evidence	After completion of assessment

Step 1

Pre-Assessment Briefing and Checklist

A pre-assessment briefing for learners is held before the delivery of the program. Use the checklist below to ensure that all these points are addressed and discussed with the learners.

Pre-Assessment Briefing Checklist		
	√	X
Organise resources – people, equipment, venue, etc.		
Explain the purpose of the assessment		
Discuss the standards or criteria to be used		
Discuss assessment roles and accountabilities		
Decide on assessment venues		
Negotiate evidence required, and where or how this evidence may be gathered		
Explain the methods of assessment that will be used during the gathering and summing up of evidence		
Negotiate the date of submission for the activity workbook and the date for the summative assessment		
Discuss resources required for the assessment e.g. equipment, materials, etc.		
Explain the procedure if the learner is found to be not yet competent		
Explain the appeal and review procedures		
Identify any potential learning barriers and negotiate strategies to overcome these		
Complete and sign the assessment plan with the learner		

The learner and assessor must sign the **Learner Contract** in the learner assessment guide.

Step 2

Learner Declaration of Authenticity

The learner is requested to complete and sign the Declaration of Authenticity in the learner assessment guide. This should be checked and co-signed by the assessor.

The format is as reflected in the learner assessment guide.

Step 3

Diagnostic Assessment of Learning Assumed to be in Place

In the learner assessment guide, the learner is asked to indicate whether they have completed the learning assumed to be in place as prescribed by the unit standard.

The assessor must guide the learners through this step, explaining in detail the content of the mentioned learning areas, because names of learning programs do not always agree with the names of the unit standards, and learners might indicate the incorrect information.

If learners indicate that they have not yet completed the mentioned unit standards, the assessor should prescribe an action plan to allow the learner to obtain the skills required by recommending additional training, competence portfolios, or the relevant RPL assessment for the given unit standards.

The format is as reflected in the assessment guide for learners. Please read it and familiarise yourself with its content.

Step 4

Assessment Plan for Gathering of Evidence

A pro-forma assessment plan for this unit standard has been drafted in the learner assessment guide. Explain the plan to the learner and complete the dates and signatures as indicated.

The format for the assessment plan is as reflected in the assessment guide for learners. Please read it and familiarise yourself with its content. Make a note of the dates agreed upon in the table provided below.

Learner and Assessor Assessment Plan		
Unit Standard	Schedule the Operation and Maintenance of Irrigation Systems	
Registration Number	116317	
Step	***Description***	***Completion / Submission Date***
Step 5	Learner Formative Assessment Activities	
Step 6	Report Writing	
Step 7	Integrated Summative Assessment	
Step 8	Re-Assessment Procedures	
Step 9	Documentation	
Step 10	Administration and Completion of Portfolio of Evidence	

Step 5

Learner Formative Assessment Activities

The Learner Assessment Guide contains comprehensive activities and worksheets that the learner must complete during the delivery of the learning program. It is imperative that these activities be completed as part of the learning process in order to give the learner the opportunity to develop the skills, knowledge and attitudes that are required for competence.

Learners must complete all the activities in the workbook.

Learners must be encouraged to take control of their learning by indicating areas in the workbook where they experience difficulty.

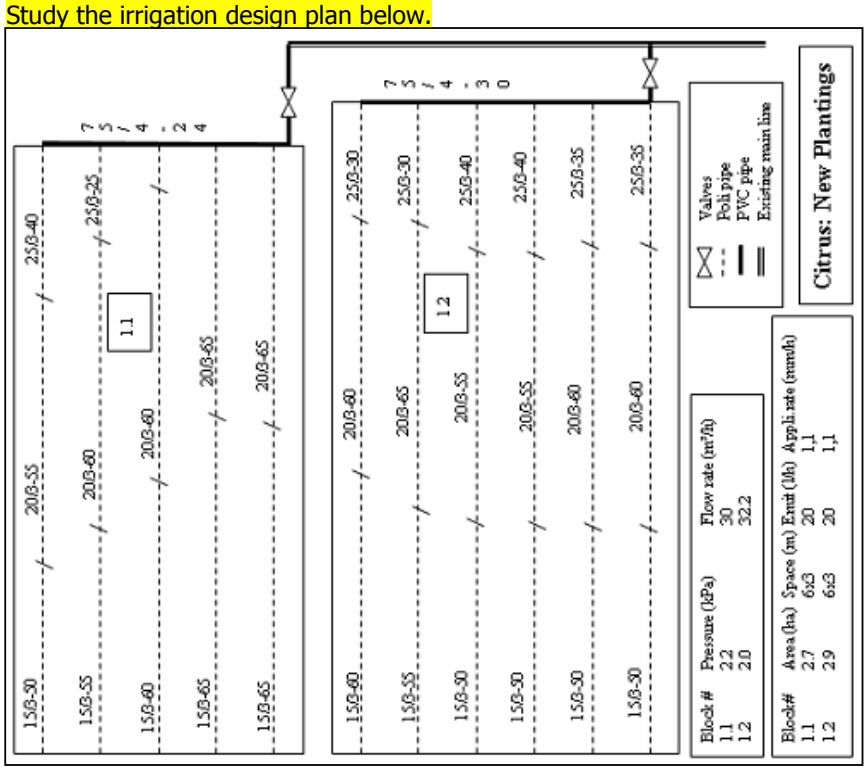
Learners hand in the Learner Assessment Guide to the assessor or the facilitator, only if the facilitator is a subject matter expert, for the assessment of the formative assessment activities. The assessment of these activities must be done according to the prescribed benchmarks and according to the marking matrix that follows.

The learner must not move on to the next step before this step has been completed and learners show sufficient capacity and readiness for summative assessment. If problems areas are identified, the learner should be guided with a developmental action plan, which is documented separately and signed by the learner, the facilitator and the assessor.

Model answers are provided below.

Activity 1 – Action Plan

Study the irrigation design plan below.



Draft an action plan with specific duties, timeframes and deliverables according to your interpretation of the design plan.

Actions:

The following actions can be included:

1. **Clearing of the new veldt e.g. removing bush, trees**
2. **Terrain rehabilitation of dongas, anthills, dips etc**
3. **Land preparation (liming, ripping, ridging)**
4. **Pegging out of new blocks**
5. **Ordering materials according to design plan**
6. **Digging trenches**
7. **Laying of main and mother-lines**
8. **Laying of laterals and emitters**
9. **Flushing of system**
10. **Planting of crop**
11. **Irrigating and system evaluation**

Duties:

Duties can follow the same steps as for actions, but focus on coordinating and management each step. Duties can cover areas such as:

1. **Coordinating the clearing by either with the use of machines or manual labour**
2. **Assessing what if any terrain rehab is necessary**
3. **Coordinating the land prep. This is a major duty that the student can integrate from other unit standards.**
4. **Pegging out is a major duty**
5. **Ordering, coordinating delivery time tables and stock control**
6. **Digging of trenches as described in previous unit standards**
7. **Laying pipes, installing emitters and flushing of systems as described**
8. **System evaluation**

Timeframes:

Timeframes would differ depending on available resources. Timeframes must however aim to let as many actions as possible run concurrently in order to ensure that the project is completed in the shortest possible time. An example is where as block 2 are ripped, the ridging is started on block 1. Timeframes must also be realistic in allowing enough time but not dragging the project out.

Deliverables:

Deliverables can be based on the successful completion of the duties. The system evaluation after the crop is planted is a major deliverable as this will tell if the system is operating successfully or not.

Activity 2 – Practical Duties

Complete the practical duties listed and include naturally occurring evidence in the form of reports, job cards, pictures, meeting minutes, and performance management assessments.

1. Peg out a block according to an irrigation design plan.
2. Dig conveyance system trenches according to specifications.
3. Install irrigation pipes, valves, and filters.
4. Back-fill the trenches according to specifications.
5. Test the irrigation system.

Write key-notes for yourself about what you did and attach signatures from your mentor, coach or superior proving that you have successfully completed the tasks.

Key Notes:			
No model answer provided. To complete practical duties.			
Learner's Signature		**Date:**	
Assessor's Signature		**Date:**	

Activity 3 – Worksheet

Complete the worksheet below.

Describe how you would orientate the plan to the land?

The plan must be turned so that landmarks on the plan agree with the actual landmarks, such as dams, canals, koppies, or any other distinguishable feature that is shown on the map. Familiarise yourself then with the block and pipe layout on the plan and compare it with the actual block and pipe layout.

Describe in your own words how colours and symbols are used on irrigation design plans?

On an irrigation design plan symbols or different colours are used to depict the various pipes, valves and other features. Usually, a key is provided with the symbols and their meaning.

What does the following notations mean:

110/6-80	**Pipe with nominal diameter of 110mm, class 6, 80m in length**
25/3-150	**Pipe with nominal diameter of 25mm, class 3, 150m in length**

Describe how you would demarcate a trench and discuss the requirements for a trench in terms of dimensions.

The centre of the trench can be pegged with pegs about 50m to 100m apart. Tie a wire or a rope to the pegs to mark out line between them, and use ordinary lime to mark out the line of the trench. When the trenches are dug, the chalk line must be in the centre of the trench. Trenches are dug about 400mm to 600mm wide, depending on the size of the pipe. Trenches are usually about 600mm deep. Trenches for pipes that go through lands and roads, such as mainlines and sub-mainlines, should be 1,000mm deep. Trenches for mother lines can be a bit shallower, at about 400mm.

Describe how to install different types of pipes, bends and end caps.

Pipes are installed in trenches as follows:

- **Before installing pipes in trenches, ensure that the trenches are free of stones and sharp edges.**
- **Asbestos cement pipes and large PVC pipes must be laid down on a bed of sand.**
- **Place the first pipe into the trench and secure it by backfilling the trench near the ends of the pipe.**
- **Place a collar over the end of the pipe. Make sure the collar and the end of the next pipe is clean.**
- **Lubricate the inside of the collar and the end of the next pipe with pipe lubricant or soap water. Do not use oil because this will cause the rubbers to perish.**
- **Insert the end of the second pipe into the collar.**
- **Place a wooden block over the other end of the second pipe and tap the block with a hammer to force the pipe into the collar. The force that is required depends on the size of the pipe.**
- **Drive the pipe in up to the depth marked on the pipe. Take care not to pinch the rubbers.**
- **If the pipe refuses to go into the collar, remove the pipe and inspect the collar, as the rubbers may have shifted.**
- **Ensure that there are no foreign objects inside the pipes that can cause blockages in the**

irrigation system.
- **As the pipes are laid they can be backfilled near the edges. Joints must be left open to check for leaks.**

Pump and filter bank installation is a specialised job that should be carried out by a competent contractor.
Inline filters can however be installed very easily. The filter is attached to risers so that it is above ground. At the bottom end of the risers are riser outlet bends, which are spigoted to slide over the pipe. At the back of each riser leg, a Y-standard is hammered in and tied down to the riser to keep the leg from popping out. The valve clusters are installed in the same way.
Grommets are installed by sawing a hole in the mother line, and inserting a rubber ring into the hole. The ring has a groove that fits into the sides of the pipe. The coupling is inserted into the lateral and then pushed into the rubber ring. There is also another type of grommet that is pushed into the hole and the retaining nut on the grommet is tightened.
Nylon couplings and reducers are pushed into the poly pipe. No clamps are needed as long as the working pressure is within limits.
Micros have a tube that is fitted with a barb and drippers have the barb moulded onto them. A hole is punched in to the poly pipe and the barb inserted into the hole.

Describe the testing of the irrigation system.

The various components of the irrigation system are tested as they are installed, and the performance of the entire system is tested once the installation is complete.
As the pipes are laid and flushed, joints are inspected for leaks. Once the pipes are partially backfilled with the joints exposed, the system is brought up to working pressure. The blocks that are grouped in operations are opened. Pressure readings are taken before and after the valves, and these are compared with the values noted on the irrigation design plan in the Pressure and Flow at Nodes table. If the readings are not correct, it may be an indication of wrong pipe size, incorrect hydraulic valve settings, or pump or filter malfunction.
Hydraulic valves are calibrated at this time. The pressure gauge is inserted downstream after the valve and the valve is opened. Note the pressure reading. Once the block is filled, the valve is switched to automatic. If the pressure reading drops, the screw on the pilot is turned slowly in a clockwise direction. If the pressure rises, the screw on the pilot is turned anticlockwise. The process is repeated by adjusting the pilot, checking the pressure again after a while, and adjusting the pilot again if necessary.
Once the hydraulic valves have been calibrated, the pressures in the lateral lines can be checked. Check the pressure at the end of each lateral, which should be close to the pressure that the valve is set at. Alternatively, each lateral can be assessed visually, and the pressure of the laterals measured that appears to have a different distribution pattern than the other lines.
Emitter delivery can also be checked to see if it corresponds with the irrigation plan. Place the emitter in a suitable container. After 15 or 30 minutes, remove the container and measure the amount of water. Multiply the amount of water by four for 15 minutes and two for 30 minutes to calculate the emitter delivery per hour. When this test is done with a representative sample for the whole block, it is called a CU (Coefficient of Uniformity) test.
After this test is done and the system has been operating for a couple of days, inspect joints for leaks. If no leaks are found, the trenches can be backfilled completely.

Activity 4 – Duty Lists

Draft duty lists for the team on the daily, weekly, monthly, seasonal and yearly maintenance of the irrigation system.

Daily:

Check that block pressures are within prescribed limits.
Check for clogged, broken or misplaced emitters. Repair, replace, unclog or reposition emitters.

Check for leaks in pipes and other equipment and other water wastage, and repair if found. **Flush primary filters as prescribed.** **Check that fertigation applications are within specifications.**
Weekly:
Flush lateral lines as prescribed. **Flush secondary filters as prescribed** **Check that system pressure and flow are as per irrigation design plan.** **Check that pump operation are within prescribed parameters.** **Check that block pressures are as prescribed where automated valves are used.** **Check pump oil levels as prescribed.** **Inspect fertigation plant.**
Monthly:
Visually check valves, water meters and gauges and look for damage and / or vandalism. **Open and inspect filters as prescribed.** **Check for leaks at pump pipe work through which water is lost and for leaks through which the pump can suck air.** **Grease pump motor as prescribed.** **Perform CU tests**
Yearly:
Service valves and physically check correct operation. **Thoroughly clean filters and replace sand in sand filters.** **Change oil in pump.** **Take a water sample at the end of lateral lines and send it for analysis.**

Activity 5 – Worksheet
Complete the worksheet below.
Use the maintenance plan in section 2 and rewrite to apply to the farm you work on. Mention how and why the intervals of certain tasks will be lengthened or shortened.
No model answer, depending on learner context.
What symptoms can be indicative of a higher system flow?
Pump: Amp reading is higher than expected **Pump: Pressure reading is the same or lower than expected** **Pump: Flow meter reading higher than expected** **Pressure at Nodes: Lower than expected** **Pressure at Blocks: Lower than expected** **CU Test: CU might be good, but the flow per emitter can be higher**
What symptoms can be indicative of a lower system flow?
Pump: Amp reading is lower or higher than expected **Pump: Pressure reading is higher or lower than expected** **Pump: Flow meter reading is lower than expected** **Pressure at Nodes: Higher or lower than expected** **Pressure at Blocks: Lower or higher than expected** **CU Test: Poor CU with low emitter delivery**
Describe the symptoms for a blocked impeller, filter and pipe.
Blocked Impeller: Low pressure reading at pump and in the rest of the system **Blocked Filter: High pressure at pump, but low pressure after filter bank** **Blocked Pipeline: High pressure up to the filter and some nodes, but at other nodes the pressure is low**

Activity 6 – Worksheet

Name and discuss the three components of the irrigation schedule.

Table of Operations
The table of operations lists the different operations and the blocks involved in each operation.
Irrigation schedule
The irrigation schedule lists the date and stand time for each operation. The longer the stand time the more water is applied, which would apply during hot periods.
List of pressures and flows
List of pressures and flows, which is used to set the pressure for each block.

Activity 7 – Report Writing

Obtain an irrigation schedule of the farm where you are performing your practical work. Draft an additional report explaining in detail how the following influenced the irrigation schedule and how it would influence adjustments to the schedule:

1. The use of tensiometers and tensiometer readings
2. The taking of soil samples and analyses of soil sample reports
3. The use of a probe
4. The considerations of the previous week's and month's scheduling programmes
5. Current flow rates and flow rate readings
6. Weather station information and data
7. 7-day weather forecasts

No model answer, depending on learner context.

Activity 8 – Pictogram

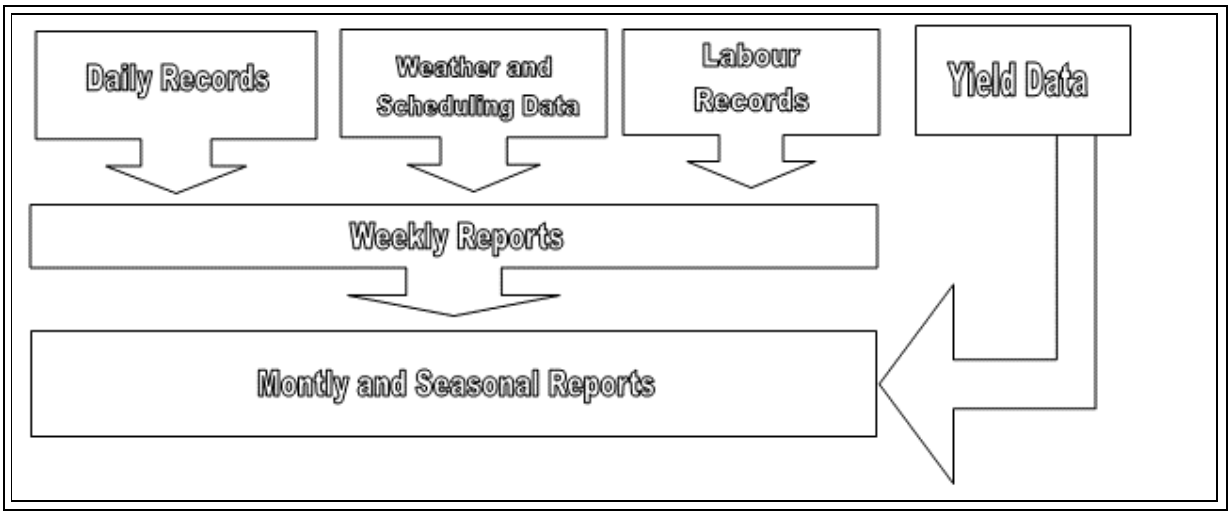
Draft a pictogram and make a brief presentation to the class explaining the process of irrigation effectiveness. Be sure to include considerations for CU tests, water balance determination and depth of irrigation.

Learner must include notes on interpreting CU test data (what is the effect / cause of poor CU) as well as demonstrating an understanding of the use of scheduling equipment to determine the soil water balance. Note that scheduling equipment like probes and tensiometers and the digging of profile holes can be used to determine the depth of irrigation.

Activity 9 – Flow Diagram

Draw a flow diagram with attached notes, details and training schedules for the preparation of reports regarding management of the irrigation system.

The learner must attach notes on the nature and source of each type of record as well as how he /she intends to combine this data into the relevant weekly , monthly and seasonal reports. The notes must also include a section on how reports can assist with the management of an irrigation system as well as comparing events / data with previous events or data.
Example:



Activity 10 – Worksheet

Use the examples of records in section 1 and adapt it to suit your specific conditions. Prepare a form that captures the yield of subtropical fruit per block.

Labour records: Can include more or less irrigation blocks / operations depending on the number of blocks / operations that are controlled by a specific labourer. It can also include other tasks that are performed by the labourer as well as comments / observations.
Daily records: The number of fields will vary depending on the farm. This report can also be used to capture data regarding fertigation by inserting applicable fields such as type of fertilisers mixed into tanks, amount of fertilisers, EC, pH, dosing meter readings and blocks fertigated. The same principle applies for weekly activities / reports.
Weather and scheduling reports: Fields can vary to include applicable measurements.
Yield records: Should at least contain the following fields:

- **Block number**
- **Cultivar**
- **Date of picking**
- **Number of units picked (number of bags, bins or crates)**
- **The mass as recorded on a weight slip if applicable.**

Marking Matrix and Assessor Report for Formative Assessment Activities Formative Evidence Collection Summary for Unit Standard 116317 – Level 4					
	Action Required from Learner to Develop Competence	***Competence Assessments***	***Standard for Activity***	***Allocation of Marks***	***Feedback to Learner and Comments on Evidence***
Specific Outcome 1: **Install an irrigation system** *Range:* Includes but is not limited to plan interpretation, site preparation, survey, pipe, valve, filter requirements, etc.	Attend classroom lesson, participate and ask questions	Activities in learner activity book were completed correctly	Activity answers must be at least 85% correct A signature + commentary from the supervisor / coach / mentor or facilitator in learner Workbook	As per model answer sheet	
Specific Outcome 2: **Maintain and evaluate an irrigation system** *Range:* Includes but is not limited to regular maintenance and evaluation of the functioning of an irrigation system	Attend classroom lesson, participate and ask questions	Activities in learner activity book were completed correctly	Activity answers must be at least 85% correct A signature + commentary from the supervisor / coach / mentor or facilitator in learner Workbook	As per model answer sheet	
Specific Outcome 3: **Efficiently operate an irrigation system** *Range:* Includes but is not limited to irrigating according to schedule, regular in-field operational checks, etc.	Attend classroom lesson, participate and ask questions	Activities in learner activity book were completed correctly	Activity answers must be at least 85% correct A signature + commentary from the supervisor / coach / mentor or facilitator in learner Workbook	As per model answer sheet	
Specific Outcome 4:	Attend classroom lesson, participate and	Activities in learner activity book were	Activity answers must be at least 85% correct	As per model answer sheet	

Marking Matrix and Assessor Report for Formative Assessment Activities Formative Evidence Collection Summary for Unit Standard 116317 – Level 4					
	Action Required from Learner to Develop Competence	***Competence Assessments***	***Standard for Activity***	***Allocation of Marks***	***Feedback to Learner and Comments on Evidence***
Collate data pertaining to the long-term efficient management of an irrigation system *Range:* Data includes but is not limited to general record keeping of all irrigation practices in order to be able to, in time, allow for scientific appraisal of and improvement of all relevant practices	ask questions	completed correctly	A signature + commentary from the supervisor / coach / mentor or facilitator in learner Workbook		
US CCFO: Identifying	Attends all lessons, activities, practical and completes activities and workbook as per instructions	Attendance register and facilitator report	Learner must at least be present and no negative commentary about the learner should be made in the facilitator report.	N/a	
US CCFO: Working					
US CCFO: Organising					
US CCFO: Communicating					
US CCFO: Science					
US CCFO: Demonstrating					
US CCFO: Contributing					
US CCFO: Identifying					

Assessment Feedback Form – Activity Workbook			
	Comments / Remarks		
Feedback to learner on assessment			
Feedback from learner to assessor			
Learner's Signature		**Date:**	
Assessor's Signature		**Date:**	

Step 6

Report Writing

Before the summative task is undertaken, the learner must be reminded of what is expected from him / her in terms of summative and reflexive competence. Read and explain to the learner this section in the learner assessment guide. The learner and assessor must sign off this section to acknowledge that this step was completed.

- Use the planning and questioning format below to help you collect evidence for foundational and embedded knowledge as prescribed by the outcomes of the unit standards.
- Provide the questions as listed to the learners as a guide.
- Ensure that you apply the exact same methodology for each learner in order to ensure that VACS principles are adhered to.
- The benchmark for learner competence is an 85% overall test score.
- Only a suitably qualified and registered assessor who is ALSO a subject matter expert in this specific field can mark this assessment tool for learner assessment.
- If no such a person can be found to assess the learner, then it is advised that a qualified assessor consults with the appropriate subject matter expert prior to the assessment in order to establish key points for competence and / or uses model answers as supplied by a subject matter expert to allocate marks. The subject matter expert should be consulted for any answers that the assessor might have queries on.
- Use a header in the following format for each test paper:

Unit Standard:	116317	**NQF Level:**	4
Learner Name			

- The assessor should use the criteria below as a marking matrix and to gather evidence and to check for completeness.

General recordkeeping of all irrigation practices
Periodic scientific appraisal and improvement of irrigation practices
Compare records pertaining to water use versus crop yield versus climatic data and make recommendations.
Assess the format in which format records are kept, being hand written, electronic, manual, computerised, etc. and make recommendations on how these can be improved.
Discuss the first line maintenance and checking an evaluation of all instruments, i.e. calibrated to assure validity and avoid instrument drift or calibration drift

Step 7

Integrated Summative Assessment Tool

One assessment tool is provided in this step, being:

1. Attitudes and Attributes Assessment Tool

This assessment tool has been drafted in its entirety and follows below. It must be copied and completed for every learner in the same manner and according to the same procedure.

Learners must not be given these tools in preparation for summative assessment. This corresponding step in the Learner Assessment Guide is a direct reflection of these tools and is drafted in a format that is appropriate to the learner's level of language competence.

1. Attitudes and Attributes Assessment Tool

- Use this rating scale to judge the learner's CCFO competence according to the unit standard.
- The learner's entire performance and all the stages of learning, as well as all gathered evidence must be considered for this section.
- It is advised that the assessor consult with facilitators, mentors, coaches and supervisors in order to ensure that an objective rating is allocated.
- A rating between 1 and 5 should be given, as follows:

Rating	***Description***
1	No evidence can be found
2	The evidence found is weak and this is still a major development area for the learner
3	The evidence found meets the average expectation for a learner on this level
4	The evidence found is of a high quality and exceeds the average standard expected
5	The evidence found is outstanding and the learner attitudes and traits are very well developed

- Leaner must be given constructive feedback on each rating.
- Ensure that you apply the exact same methodology for each learner in order to ensure that VACS principles are adhered to.
- The benchmark for learner competence in this tool is 3:5 in EVERY CCFO.

At the end of this step, an assessment feedback form is provided which must be completed and signed by the assessor, learner and moderator, where applicable.

Attitudes and Attributes Assessment Tool

Use the following rating table in this assessment:

Rating	***Description***
1	No evidence can be found
2	The evidence found is weak and this is still a major development area for the learner
3	The evidence found meets the average expectation for a learner on this level
4	The evidence found is of a high quality and exceeds the average standard expected
5	The evidence found is outstanding and the learner attitudes and traits are very well developed

CCFO Criteria	***Rating***
Identifying – The learner can identify problems and deficiencies correctly.	
Working in a Team – The learner is able to work well as member of a team.	
Organising – The learner works in an organised and systematic way whilst performing all tasks and tests.	
Communicating – The learner is able to communicate his or her knowledge orally and in writing, in a way that shows what knowledge he or she has gained.	
Demonstrating – The learner is able to show and perform the tasks required correctly.	
Contributing – The learner is able to link the knowledge, skills and attitudes that he or she has acquired in this module of learning to specific duties in their job or in the community where he or she lives.	
Science – Learner is able to utilise and use science and technology effectively	
Collecting – Learner can effectively gather information	

<table>
<tr><th colspan="4">Assessment Feedback Form</th></tr>
<tr><td></td><td colspan="3">Comments / Remarks</td></tr>
<tr><td>Feedback to learner on assessment and / or overall recommendations and action plan for competence</td><td colspan="3"></td></tr>
<tr><td>Feedback from learner to assessor</td><td colspan="3"></td></tr>
<tr><td>Assessment Judgement</td><td>You have been found:

❍ Competent
❍ Not yet competent

in this unit standard</td><td colspan="2">Actions to follow:

❍ Assessor report to ETQA
❍ Learner results and attendance certification issued</td></tr>
<tr><td>Learner’s Signature</td><td></td><td>Date:</td><td></td></tr>
<tr><td>Assessor’s Signature</td><td></td><td>Date:</td><td></td></tr>
<tr><td>Moderator’s Signature</td><td></td><td>Date:</td><td></td></tr>
</table>

Step 8

Re-Assessment Procedures

- Note that only outcomes on which the learner was found not yet competent must be re-assessed.
- The same procedures in steps 6 and 7 are repeated.
- The tool must be adapted at discretion of the assessor. Best practice is not to present the exact same format and questions if possible.
- Use your expertise and judgement to ensure that the method of re-assessment remains integrated and relevant to the expected outcomes.

Step 9

Documentation

The following documentation is addressed in this step:

1. Learner and assessor information reports;
2. Assessor report and summative evidence collection summary;
3. Learner assessment re-actionnaire;
4. Assessor's assessment review and improvement document;
5. Assessment appeal form

1. Learner and Assessor Information Forms

The learner information form is in the assessment guide for learners. The assessor information form follows. These forms must be completed for each individual learner and placed in the learner's portfolio of evidence.

2. Assessor Report and Summative Evidence Collection Summary

This report follows after the information report. Use it to summarise the findings during assessment. Please complete the copy of this report that is in the learner assessment guide.

3. Learner Assessment Re-Actionnaire

A pro-forma for the learner assessment re-actionnaire is included in the learner assessment guide. Ask the learner to complete this form and sign it.

4. Assessor's Assessment Review and Improvement Document

The assessor is expected to complete the assessor review of the assessment process, using the pro-forma document of which an example follows. Please complete the copy of the document in the learner assessment guide. This document must be discussed with the learner and any learner commentary should be recorded.

5. Assessment Appeal Form

The assessment appeal form is also provided in the learner assessment guide. Assist the learner to complete the document if necessary.

The learner must be requested to sign-off all reports and documents before they are placed in the portfolio of evidence.

Assessor Information Form				
Unit Standard	116317			
Program Date(s)				
Surname				
First Name				
Company Name				
Job / Role Title				
Home Language				
Gender	Male		Female	
Race	African	Coloured	Indian/Asian	White
Employment	Permanent		Non-permanent	
Disabled	Yes		No	
Date of Birth				
ID Number				
Contact Telephone Numbers				
Email Address				
Postal Address				

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116317 – Level 4					
Description	***Evidence Gathered***		***Benchmark***	***Competent / Not yet Competent***	***Feedback and Comments***
	Foundational and Embedded Knowledge	**Practical Skills, Underpinning Knowledge and Reflexive Competence**			
Specific Outcome 1: **Install an irrigation system**	Summative Report	CCFO Rating Scale	85% competence in all areas		
Specific Outcome 2: **Maintain and evaluate an irrigation system**	Summative Report	CCFO Rating Scale	85% competence in all areas		
Specific Outcome 3: **Efficiently operate an irrigation system**	Summative Report	CCFO Rating Scale	85% competence in all areas		
Specific Outcome 4: **Collate data pertaining to the long-term efficient management of an irrigation system**	Summative Report	CCFO Rating Scale	85% competence in all areas		
Embedded Knowledge: The learner is able to demonstrate a basic knowledge of: 1. Appropriate laws and regulation pertaining to agricultural water use, environmental safety, etc. 2. Elementary hydraulics 3. Principles of irrigation, crop water requirements, soil water holding			Overall minimum test score of 85%		

Assessor Report and Summative Evidence Collection Summary for Unit Standard 116317 – Level 4					
Description	***Evidence Gathered***		***Benchmark***	***Competent / Not yet Competent***	***Feedback and Comments***
	Foundational and Embedded Knowledge	**Practical Skills, Underpinning Knowledge and Reflexive Competence**			
capacity, etc. 4. Principles of irrigation system design 5. Principles of irrigation scheduling 6. Use of computer based irrigation scheduling programs 7. Principles of human and resource management					
Unit Standard CCFO's: 1. **Problem solving** relates to all specific outcomes. 2. **Teamwork** relates to all specific outcomes. 3. **Self-organisation and management** relates to all specific outcomes. 4. **Communication** relates to all specific outcomes. 5. **Self-development** relates to all specific outcomes. 6. **Inter-relatedness of systems** relates to all specific outcomes. 7. **Information evaluation** relates to all specific outcomes. 8. **Use science and technology** relates to all specific outcomes.	N/a	Rating Scale	Minimum rating of 3:5 in each criteria or overall average of 3:5		

Assessor's Assessment Review and Improvement Document	
Issues	**Comments**
Did the assessment go according to plan?	
Did anything unexpected happen?	
Were you pleased with the assessment decision; i.e. was it what you expected?	
How could the process have been carried out more efficiently?	
How could the process of assessing the knowledge be improved?	
How could the Performance Observation checklist be improved?	
Was the evidence you gathered sufficient to make a judgment of competence?	
Was the way you obtained feedback from the learner effective?	
Were you pleased with the way you communicated your decision to the learner? If not, how could this have been improved?	
How would you improve the assessment process?	

Any learner has the right of appeal against any not-yet-competent decision by the assessor. If the learner wishes to appeal, please assist him / her to complete the form below.

Appeal Form			
I hereby appeal against the outcome of my assessment.			
Date:			
Learner's Name:			
Assessors Name:			
Organisation:			
Assessment Details: Criteria, role, standards Used, etc.			
Issue to be Reviewed:			
Learner's Signature		**Date:**	
Assessor's Signature		**Date:**	

Step 10

Administration and Completion of Portfolio of Evidence

All the documents or copies thereof, as prescribed previously, must be kept on file as part of the learner portfolio of evidence.

Learner's portfolio of evidence must be readily available for internal and external moderation and verification by the appropriate practitioners, until after the verification process has taken place. The portfolio of evidence may then be kept or returned to the learner according to the service provider's policy.

The prescribed learner results form should be submitted to the ETQA or the National Learner Database as per the SETA procedure.