REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARD

FOR

ANALYTICAL CHEMISTRY TECHNICIAN

KNQF LEVEL 6

OCCUPATION STANDARD ISCED CODE: 0531 554A

PERFORM QUALITY ASSURANCE AND CONTROL

ISCED UNIT CODE: 0531 551 16A

TVET CDACC UNIT CODE: ASC/OS/ACHEM/CR/07/6/MA

UNIT DESCRIPTION

This unit covers the competencies required in performing quality assurance and control of analytical chemistry laboratory procedures. It involves conducting quality control, quality assurance, quality audits, and method validation.

ELEMENT AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up laboratory function	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***(Bold and italicized terms are elaborated in the Range)***
1. Conduct quality control	1.1 Samples are collected as per chemistry laboratory manual. 1.2 Blank samples are run as per chemistry laboratory manual. 1.3 Quality control samples are run as per chemistry laboratory manual. 1.4 Blind samples are run as per chemistry laboratory manual. 1.5 ***Chemical standards*** are run as per chemistry laboratory manual. 1.6 Repeat samples are run as per laboratory manual. 1.7 Results are ***documented*** as per organizational procedures.
2. Conduct quality assurance	2.1 Samples are collected as per chemistry laboratory manual.

	2.2 Certified reference materials are run as per chemistry laboratory manual. 2.3 Chemical standards. are run as per chemistry laboratory manual. 2.4 ***Interlaboratory comparisons*** are run as per chemistry laboratory manual. Uncertainty is evaluated as per chemistry laboratory manual.
3.Conduct quality audits	3.1 ***Quality audits*** are selected as per institutional guidelines. 3.2 Audit plan is developed as per institutional guidelines. 3.3 Pre-audit reviews are conducted as per institutional guidelines. 3.4 Audit is conducted onsite as per institutional guidelines. 3.5 Audit findings are generated as per institutional guidelines. 3.4 Audit findings are reported as per institutional guidelines.
4. Conduct method validation	4.1 Method selectivity is validated as per ICH 2003 guidelines. 4.2 Method precision is validated as per ICH 2003 guidelines. 4.3 Method accuracy is validated as per ICH 2003 guidelines. 4.4 Method bias is validated as per ICH2003 guidelines.

	4.5 ***Measurement range*** is validated as per institution ICH 2003 guidelines.

RANGE

This section provides a work environment and conditions to which the performance criteria apply. It allows for a different work environment and situations that will affect performance.

Variable	**Range**
1. Chemical standards.	• Standard solution • Analytical reagents • Reference standard
2. Results are documented	• Reports • Graphs • Filling
3. Interlaboratory comparisons	• Independent certified laboratory • Compliance laboratories
4. Quality audits	• Safety • Quality management systems • Product quality • Quality operations • Pollution
5 Measurement range.	• Accuracy • Selectivity • Detection limits

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Communication skills
- Taking measurements
- Computer skills
- Problem solving skills
- Numeracy skills
- Teamwork

Required Knowledge

The individual needs to demonstrate knowledge of:

- OSHA
- Environmental literacy
- Book keeping
- Calibration procedures.
- ISO Standards.

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Ran blank samples as per chemistry laboratory manual. 1.2 Ran quality control samples as per chemistry laboratory manual. 1.3 Ran blind samples as per chemistry laboratory manual. 1.4. Ran Chemical standards. as per laboratory manual. 1.5 Ran repeat samples as per chemistry laboratory manual.
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace 2.2 Appropriately simulated environment where assessment can take place 2.3 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Written 3.2 Third party report
4. Context of Assessment	Competency may be assessed: 4.1 Workplace 4.2 Simulated laboratory environment
5. Guidance information for assessment	5.1 Holistic assessment with other units relevant to the industry sector, laboratory and job role is recommended.