REPUBLIC OF KENYA

COMPETENCY BASED MODULAR CURRICULUM

FOR

ANALYTICAL CHEMISTRY TECHNOLOGY

KNQF LEVEL 6
(CYCLE 3) PROGRAMME ISCED CODE: 0531 554A

TVET CDACC
P.O. BOX 15745-00100 NAIROBI

DIGITAL LITERACY

ISCED UNIT CODE:0611 541 09A

TVET CDACC UNIT CODE:ASC/CU/ACHEM/BC/01/6/MA

Relationship to Occupational Standards

This unit addresses the Unit of Competency: **Apply Digital Literacy**

Duration: 40 Hours

Unit Description

This unit covers the competencies required to demonstrate digital literacy. It involves operating computer devices, solving tasks using the Office suite, managing data and information, performing online communication and collaboration, applying cybersecurity skills, and performing jobs online.

Summary of Learning Outcomes

S/No	Learning Outcomes	Duration (Hours)
1.	Operate computer devices	6
2.	Solve tasks using Office suite	14
3.	Manage data and information	6
4.	Perform online communication and collaboration	4
5.	Apply cyber security skills	4
6.	Perform online jobs	4
7.	Apply job entry techniques	2
Total		**40**

Learning Outcomes, Content, and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods

1. Operate computer devices	1.1 Meaning and importance of digital literacy
	1.2 Functions and Uses of Computers
	1.3 Classification of computers
	1.4 Components of a computer system
	1.5 Computer devices
	    1.5.1 Desktops
	    1.5.2 Laptops
	    1.5.3 Smartphones
	    1.5.4 Tablets
	    1.5.5 Smartwatches
	1.6 Computer Hardware
	    1.7.1 The System Unit E.g. Motherboard, CPU, casing
	
	    1.7.2 Input Devices e.g. Pointing, keying, scanning, voice/speech recognition, direct data capture devices.
	
	    1.7.3 Output Devices e.g. hardcopy output and softcopy output
	
	    1.7.4 Storage Devices e.g. main memory e.g. RAM,
		• Observation
		• Portfolio of Evidence
		• Project
		• Written assessment
		• Practical assessment
		• Oral assessment

Learning Outcome	Content	Suggested Assessment Methods
	secondary storage (Solid state devices, Hard Drives, CDs & DVDs, Memory cards, Flash drives 1.7.5 Computer Ports e.g. HDMI, DVI, VGA, USB type C etc. 1.8 Classification of computer software 1.8.1 System software e.g. Operating System (Windows, Macintosh, Linux, Android, iOS) 1.8.2 Application Software e.g. Word Processors, Spreadsheets, Presentations etc. 1.8.3 Utility Software e.g. Antivirus programs 1.9 Operating system functions 1.9.1 Procedure for turning/off a computer 1.10 Mouse use techniques 1.10.1 Clicking 1.10.2 Double-clicking 1.10.3 Right-clicking 1.10.4 Drag and drop 1.11 Keyboard Parts and Use Techniques 1.12 Desktop Customization	

Learning Outcome	Content	Suggested Assessment Methods

	1.13 File and Files Management using an operating system
	1.14 Computer Internet Connection Options
	    1.12.1. Mobile Networks/Data Plans
	    1.12.2. Wireless Hotspots
	    1.12.3. Cabled (Ethernet/Fiber)
	    1.12.4. Dial-Up
	    1.12.5. Satellite
	    1.12.6. ISDN (Integrated Services Digital Network)
	1.15 Computer external devices management
	    1.15.1. Printers
	    1.15.2. Projectors
	    1.15.3. Smart Boards
	    1.15.4. Speakers
	    1.15.5. External storage drives
	    1.15.6. Digital/Smart TVs	

2. Solve tasks using Office suite	2.1 Meaning and Importance of Word Processing 2.2 Examples of Word Processors 2.3 Working with word documents	• Observation • Portfolio of Evidence • Project • Written assessment • Practical assessment

Learning Outcome	Content	Suggested Assessment Methods
	2.3.1 Open and close word processor 2.3.2 Create a new document 2.3.3 Save a document 2.3.4 Switch between open documents 2.4 Enhancing productivity 　2.4.1 Set basic options/preference 　2.4.2 Help resources 　2.4.3 Use magnification/zoom tools 　2.4.4 Display, hide built-in tool bar 　2.4.5 Using navigation tools 2.5 Typing Text 2.6 Document editing (copy, cut, paste commands, spelling and Grammar check) 2.7 Document formatting 　2.7.1 Formatting text 　2.7.2 Formatting paragraph 　2.7.3 Formatting styles	• Oral assessment

Learning Outcome	Content	Suggested Assessment Methods
	2.7.4 Alignment	
	2.7.5 Creating tables	
	2.7.6 Formatting tables	
	2.8 Graphical objects	
	2.8.1 Insert object (picture, drawn object)	
	2.8.2 Select an object	
	2.8.3 Edit an object	
	2.8.4 Format an object	
	2.9 Saving word document	
	2.9.1 save	
	2.9.2 Save as	
	2.10 Document Print setup	
	2.9.1 Page layout,	
	2.9.2 Margins set up	
	2.9.3 Orientation.	
	2.11 Word Document Printing	
	Work sheet	
	2.12 Meaning & Importance of electronic spreadsheets	
	2.13 Components of Spreadsheets	
	2.14 Application areas of spreadsheets	
	2.15 Using spreadsheet application	
	2.15.1 Parts of Excel screen: ribbon, formula bar, active cell, name box,	

Learning Outcome	Content	Suggested Assessment Methods
	column letter, row number, Quick Access Toolbar. 2.15.2 Cell Data Types 2.15.3 Block operations 2.15.4 Arithmetic operators (formula bar (-, +, 2.15.5 Cell Referencing 2.16 Data Manipulation 2.16.1 Using Functions (Sum, Average, SumIF, Count, Max, Max, IF, Rank, Product, mode etc) 2.16.2 Using Formulae 2.16.3 Sorting data 2.16.4 Filtering data 2.16.5 Visual representation using charts 2.16.6 Worksheet printing 2.16 Electronic Presentations 2.17 Meaning and Importance of	

Learning Outcome	Content	Suggested Assessment Methods
	electronic presentations	
	2.18 Examples of Presentation Software	
	2.19 Using the electronic presentation application	
	2.19.1 Parts of the PowerPoint screen (slide navigation pane, slide pane, notes, the ribbon, quick access toolbar, and scroll bars).	
	2.19.2 Open and close presentations	
	2.19.3 Creating Slides (Insert new slides, duplicate, or reuse slides.)	
	2.19.4 Text Management (insert, delete, copy, cut and paste, drag and drop, format, and use spell check).	
	2.19.5 Use magnification/zoom tools	
	2.19.6 Apply or change a theme.	
	2.19.7 Save a presentation	
	2.19.8 Switch between open presentations	
	2.20 Developing a presentation	
	2.20.1 Presentation views	
	2.20.2 Slides	
	2.20.3 Master slide	

Learning Outcome	Content	Suggested Assessment Methods

	2.21 Text
	    2.21.1 Editing text
	    2.21.2 Formatting
	    2.21.3 Tables
	2.22 Charts
	    2.22.1 Using charts
	    2.22.2 Organization charts
	2.23 Graphical objects
	    2.23.1 Insert, manipulate
	    2.23.2 Drawings
	2.24 Prepare outputs
	    2.24.1 Applying slide effects and transitions
	2.25 Check and deliver
	    2.25.1 Spell check a presentation
	    2.25.2 Slide orientation
	    2.25.3 Slide shows, navigation
	2.26 Print presentations (slides and handouts)	

3. Manage Data and Information	3.1 Meaning of Data and information
	3.2 Importance and Uses of data and information
	3.3 Types of internet services
	    3.3.1 Communication Services
	    3.3.2 Information Retrieval Services
		• Observation
		• Portfolio of Evidence
		• Project
		• Written assessment
		• Practical assessment
		• Oral assessment

Learning Outcome	Content	Suggested Assessment Methods
	3.3.3 File Transfer	
	3.3.4 World Wide Web Services	
	3.3.5 Web Services	
	3.3.6 Automatic Network Address Configuration	
	3.3.7 News Group	
	3.3.8 Ecommerce	
	3.4 Types of Internet Access Applications	
	3.4.1 Browsers	
	3.4.2 Email Apps	
	3.4.3 e-commerce Apps	
	internet search	
	3.5 Web browsing concepts	
	3.5.1 Key concepts	
	3.5.2 Security and safety	
	3.6 Web browsing	
	3.6.1 Using the web browser	
	3.6.2 Tools and settings	
	3.6.3 Clearing Cache and cookies	
	3.6.4 URIs	
	3.6.5 Bookmarks	
	3.6.6 Web outputs	
	3.7 Web based information	
	3.7.1 Search	
	3.7.2 Critical evaluation	

Learning Outcome	Content	Suggested Assessment Methods
	of information 3.7.3 Copyright, data protection 3.8 Downloads Management 3.9 Performing Digital Data Backup (Online and Offline) 3.10 Emerging issues in internet	

4. Perform online communication and collaboration	• Netiquette principles
	• Communication concepts
	  4.2.1 Online communities
	  4.2.2 Communication tools
	  4.2.3 Email concepts
	• Using email
	  4.3.1 Sending email
	  4.3.2 Receiving email
	  4.3.3 Tools and settings
	  4.3.4 Organizing email
	• Digital content copyright and licenses
	• Online collaboration tools
	  4.5.1 Online Storage (Google Drive)
	  4.5.2 Online productivity applications (Google Docs & Forms)
	  4.5.3 Online meetings (Google Meet/Zoom)
		• Observation
		• Portfolio of Evidence
		• Project
		• Written assessment
		• Practical assessment
		• Oral assessment
		•

Learning Outcome	Content	Suggested Assessment Methods
	4.5.4 Online learning environments 4.5.5 Online calendars (Google Calendars) 4.5.6 Social networks (Facebook/Twitter - Settings & Privacy) • Preparation for online collaboration 4.6.1 Common setup features 4.6.2 Setup • Mobile collaboration 4.7.1 Key concepts 4.7.2 Using mobile devices 4.7.3 Applications Synchronization	
5. Apply cybersecurity skills	5.1 Data protection and privacy 5.1.1 Confidentiality of data/information 5.1.2 Integrity of data/information 5.1.3 Availability of data/information 5.2 Internet security threats 5.2.1 Malware attacks 5.2.2 Social engineering attacks	• Observation • Portfolio of Evidence • Project • Written assessment • Practical assessment • Oral assessment

Learning Outcome	Content	Suggested Assessment Methods
	5.2.3 Distributed denial of service (DDoS) 5.2.4 Man-in-the-middle attack (MitM) 5.2.5 Password attacks 5.2.6 IoT Attacks 5.2.7 Phishing Attacks 5.2.8 Ransomware 5.3 Computer threats and crimes 5.4 Cybersecurity control measures 5.4.1 Physical Controls 5.4.2 Technical/Logical Controls (Passwords, PINs, Biometrics) 5.4.3 Operational Controls 5.5 Laws governing protection of ICT in Kenya 5.5.1 The Computer Misuse and Cybercrimes Act No. 5 of 2018 5.5.2 The Data Protection Act No. 24 Of 2019	
6. Perform Online Jobs	6.1 Introduction to online working 6.2 Types of online Jobs 6.3 Online job platforms 6.3.1 Remotask	• Observation • Oral assessment • Portfolio of evidence • Third party report • Written assessment

Learning Outcome	Content	Suggested Assessment Methods
	6.3.2 Data annotation tech 6.3.3 Cloud worker 6.3.4 Upwork 6.3.5 Oneforma 6.3.6 Appen 6.4 Online account and profile management 6.5 Identifying online jobs/job bidding 6.6 Online digital identity 6.7 Executing online tasks 6.8 Management of online payment accounts.	

7. Apply job entry techniques	• Types of job opportunities
	  7.1.1 Self-employment
	  7.1.2 Service provision
	  7.1.3 product development
	  7.1.4 salaried employment
	• Sources of job opportunities
	• Resume/ curriculum vitae
	  7.3.1 What is a CV
	  7.3.2 How long should a CV be
	  7.3.3 What to include in a CV
	  7.3.4 Format of CV
		• Observation
		• Oral assessment
		• Portfolio of evidence
		• Written assessment

Learning Outcome	Content	Suggested Assessment Methods
	7.3.5 How to write a good CV 7.3.6 Don'ts of writing a CV 7.4 Job application letter 7.4.1 What to include 7.4.2 Addressing a cover letter 7.4.3 Signing off a cover letter 7.5 Portfolio of Evidence 7.5.1 Academic credentials 7.5.2 Letters of commendations 7.5.3 Certification of participations 7.5.4 Awards and decorations 7.6 Interview skills 7.6.1 Listening skills 7.6.2 Grooming 7.6.3 Language command 7.6.4 Articulation of issues 7.6.5 Body language 7.6.6 Time management 7.6.7 Honesty	

Learning Outcome	Content	Suggested Assessment Methods
	7.7 Generally knowledgeable in current affairs and technical area	

Suggested Methods Instruction

- Instructor-led facilitation using active learning strategies
- Demonstration
- Practical work by trainees
- Viewing of related videos
- Group discussions
- Project
- Role play
- Case study

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	**Learning Materials**			
1.	Power point presentations	For trainer's use	1	1:25
2.	Report writing templates	Trainees	5	1:5
B	**Learning Facilities & infrastructure**			
3.	Lecture/theory room	For Trainer/trainee's use	1	1:25
4.	Computers with OS	Trainees	25	1:1
5.	Internet connection	Trainees and Trainers	1 connection	1:25
6.				
7.	Whiteboard	For trainer's use	1	1:25

	C	**Consumable materials**			
8.		Printing papers	For trainer and trainee use	Varies	Varies
9.		Assorted whiteboard markers	For trainer's use	Varies	Varies
	D	**Tools and Equipment**			
10.		Printers	For trainer's use	2	1:12
11.		Mobile phones	For trainer's use	25	1;1
12.		Projector	For trainer's use	1	1:25
13.		External storage media	For trainer and trainee use	Varies	1:1 or 1:5 depending on need