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**THE REPUBLIC OF KENYA**

**COMPETENCY BASED OCCUPATIONAL STANDARDS**

**FOR**

**POULTRY BREEDING OPERATOR**

**LEVEL 5**



TVET CDACC

P.O. BOX 15745-00100

NAIROBI

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# FOREWORD

Agriculture plays an important role in Kenya’s economy. This importance is reflected in the positive correlation between growth in the agricultural sector and that of the national economy. Kenya’s economy registered a growth of 3.3% between 2013 and 2014, agriculture was the leading sector which contributed 27.3% to the Gross Domestic Product (GDP) in 2014.In this regard, crops, animal production, and fishing and aquaculture contributed 19.7%, 4.9% and 0.8% respectively (25.4%), while the balance of 1.9% came from forestry and other support activities. Like most countries in Africa, majority (61%) of Kenya’s population rely on agriculture for employment despite the challenges of climate change, soil degradation and increasing population pressure. In order to enhance the productivity of the work force and ensure a productive and innovative agricultural sector, as well as food security, meaningful education and training of all people involved is of utmost importance.

In the past Agricultural Technical and Vocational Education and Training (ATVET) did not always receive adequate attention from policy-makers. The education system emphasized on acquiring knowledge rather than skills development. This resulted to most farmers and the stakeholders in agriculture lacking the requisite skills. Current reforms in the education system aim at addressing this challenge by reforming the curriculum, its delivery and its assessment. These reforms can only be achieved through Competency Based Education and Training (CBET) approach. The reforms demand for a competency-based curriculum which is a tool that will aid in the development of skills, knowledge and attitudes of the farmers. Such training will improve crop and animal husbandry skills which will in turn contribute to increased productivity and improvement of agriculture in the country. Ideally, this education and training will not only include farmers, but all professions involved in agriculture

These Occupational Standards as such presents us with a base for developing curricula for training in the poultry subsector and presents the basis for content development for the curricula. It will lead to a situation where the trainees will gain skills required in their occupation/jobs. The curriculum to be developed based on these OS will revolutionalize the Agriculture sector in Kenya.

**PRINCIPAL SECRETARY, STATE DEPARTMENT OF LIVESTOCK,**

**MINISTRY OF AGRICULTURE, LIVESTOCK, FISHERIES AND IRRIGATION.**

# PREFACE

Poultry farming has been on the increase in the last ten years due to diminishing land size, high population density and the escalating un-employment levels in formal sector. It contributes to the lives of 21 million Kenyans and 6.1% of the agricultural GDP. There are approximately 32 million birds in Kenya out of which 76% are free ranging indigenous chicken, 8% are broilers and 14% commercial layers. The indigenous poultry production involves 75% of rural households. As of 2011, it was reported that approximately 71% of eggs and poultry meat in Kenya are derived from indigenous poultry. In 2006, it was reported that commercial poultry production constitutes 23.8% of the total poultry population, with broilers representing 16.2% and layers another 7.8%. Other poultry species such as ducks, guinea fowl, Quails and turkeys comprise about 2.2% of the total poultry population. The industry is therefore is supposed to play a strategic role in the ongoing socio economic pillar under the vision 2030. However, the industry has seen slow growth over the past years due to lack of skills and increasing costs of production. This is despite the fact that the sub-sector contributes positively to wealth creation, poverty alleviation, and gender equity especially in the rural areas. The industry contributes to the macro economy by generating incomes for the value chain actors, creation of employment opportunities for rural people and provision of source of protein for poor families and manure for their gardens.

To address the challenge of lack of skilled labour, a Competency Based curriculum development process was initiated. Using the DACUM methodology Job or Occupational Analysis Chart and later these Occupation standards were developed in collaboration with the industry players and guided by Curriculum Development Assessment and Certification Council (CDACC). 11 Jobs/Occupations were identified. The information generated from the task analysis was also used to develop the Units of competences for each job. This was done by experts drawn from Technical training institutions, Universities and industry representatives. The result of the analysis was the realization of Occupational Standards for all the 11 jobs in poultry value chain.

The OS were presented to the Agriculture Sector Skills Advisory Committee (PSSAC) who made recommendations for improvement and later submitted to the next stages of approval by the CDACC. The OS development process was a rigorous exercise that involved wide consultations with various stakeholders like expert workers with the aim of enriching it and promoting its acceptance. The end product is a rich and well thought tool that will be used to develop a curriculum that shall deliver Competence Based Training and produce competent graduates that can employed, entrepreneurs or self-employed in the poultry industry.

**CHAIRPERSON,**

**TVET CDACC.**

# ACKNOWLEDGEMENTS

These occupational standards were developed through the combined efforts of different stakeholders in the poultry subsector namely private practitioners, Dairy Training Institute (DTI), Animal Health Training institutes (AHITI), regulators and key state departments. We wish to acknowledge the invaluable contribution received from the private sector industry players who provided inputs towards the development of these occupational standards against which this curriculum will be developed.

With the Occupational /Job Analysis charts in hand, the stakeholders provided technical inputs towards the development and completion of this OS. They sat through many hours putting together all the knowledge, skills and attitudes that a Poultry industry worker would require in effectively performing his/ her duties and tasks as per the occupational standards developed.

We are most sincerely thankful to the heads of these institutions who released their staff to join in this important course. Our gratitude goes to the various facilitators that moderated several workshops and ensured that all deliberations and outputs were captured and compiled. These persons did not only demonstrate patience, but also provided leadership by motivating and guiding the groups towards the finalization of this curriculum. We cannot forget to thank the government agencies that regulate the Technical and Vocational Education and Training (TVET) system namely TVET Authority and CDACC through whom guidance and support was provided on this curriculum development.

We are greatly indebted to the Food Security and Drought Resilience Programme (FSDRP) with support of the German Development Cooperation (GIZ), which enabled the implementation of this curriculum development process through the Food Security Project (FSP). In the same breath, we are indebted to the National Coordinator of the GIZ Comprehensive Africa Agricultural Development Programme (CAADP) ATVET project who was instrumental in enabling the smooth and close cooperation between the project and the key government ministries namely Ministry of Agriculture, Livestock, Fisheries and Irrigation (moalf&I) and Ministry of Education (moe).

Last but not least, we are grateful to any other person, institution, organization or company who played any role in making this process successful but has not been mentioned. We dearly acknowledge your contribution and support.

**COUNCIL SECRETARY/CEO,**

**TVET CDACC**

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# ACRONYMS AND ABBREVIATIONS

|  |  |
| --- | --- |
| 2D | 2 Dimensional |
| 3D | 3 Dimensional |
| AHITI | Animal Health and Industry Training Institute |
| ATVET | Agricultural Technical and Vocational Education and Training |
| AU - IBAR | African Union – interafrican Bureau for Animal Resources |
| CAADP | Comprehensive Africa Agricultural Development Programme |
| CAD | Computer Assisted Drawing |
| CBET | Competency Based Education and Training |
| CDACC | Curriculum Development Assessment and Certification Council |
| CEO | Chief Executive Officer |
| DACUM | Develop a Curriculum |
| DTI | Dairy Training Institute |
| DVS | Director of Veterinary Services |
| EMCA | Environmental Management and Conservation Act |
| EMS | Environmental Management Systems |
| FSDRP | Food Security and Drought Resilience Programme |
| FSP | Food Security Project |
| GDP | Gross Domestic Product |
| GMP | Good Manufacturing Practices |
| HACCP | Hazard Analysis Critical Control Point |
| ICT | Information Communication Technology |
| IM | Intra Muscular |
| KCSE | Kenya Certificate of Secondary Education |
| KNQA | Kenya National Qualifications Authority |
| KNQF | Kenya National Qualifications Framework |
| KSPCA | Kenya Society for the Care and Protection of Animals |
| LCD | Liquid Crystal Display |
| MAP | Modified Atmosphere Packaging |
| Moalf&I | Ministry of Agriculture, Livestock, Fisheries and Irrigation |
| Moe | Ministry of Education |
| NCA | National Construction Authority |
| NEMA | National Environmental Management Authority |
| NEPAD | New Partnerships for African Development |
| NGO | Non-Governmental Organization |
| NPCA | NEPAD Planning and Coordinating Agency |
| OIE | World Organization for Animal Health |
| OS | Occupational Standard |
| OSH | Occupational Safety and Health |
| PPE | Personal Protective Equipment |
| PSSAC | Poultry Sector Skills Advisory Committee |
| SOP | Standard Operation Procedures |
| TVET | Technical and Vocational Education and Training |
| TVETA | Technical and Vocational Education and Training Authority |

# 

# **KEY TO UNIT CODE**

**POL /OS/ HT /BC /01/5/ A**

Industry or sector

Occupational Standards

Occupational area

Type of competency

Competency number

Competency level

Version control

# OVERVIEW

**Description of the course**

This course is designed to equip individuals with competencies for operating a poultry breeding and hatchery enterprise. It entails; construction of poultry structures and hatchery; managing poultry brooding, health and breeding flock; producing poultry feeds Managing poultry health and welfare, constructing poultry hatchery and managing hatchery operations

This course consists of basic and core units of learning as indicated below:

**BASIC UNITS OF COMPETENCY**

|  |  |
| --- | --- |
| **Unit Code** | **Unit Title** |
| POL/OS/HT/BC/01/5/A | Communication Skills |
| POL/OS/HT/BC/02/5/A | Numeracy Skills |
| POL/OS/HT/BC/03/5/A | Digital Literacy |
| POL/OS/HT/BC/04/5/A | Entrepreneurial Skills |
| POL/OS/HT/BC/05/5/A | Employability Skills |
| POL/OS/HT/BC/06/5/A | Environmental Literacy |
| POL/OS/HT/BC/07/5/A | Occupational Safety and Health Practices |
| POL/OS/HT/BC/08/5/A | Technical Drawing |

**CORE** **UNITS OF COMPETENCY**

|  |  |
| --- | --- |
| **Unit Code** | **Unit Title** |
| POL/OS/HT/CR/01/5/A | Construct poultry structures |
| POL/OS/HT/CR/02/5/A | Manage breeding flock |
| POL/OS/HT/CR/03/5/A | Manage poultry brooding |
| POL/OS/HT/CR/04/5/A | Produce poultry feeds |
| POL/OS/HT/CR/05/5/A | Manage poultry health and welfare |
| POL/OS/HT/CR/06/5/A | Construct poultry hatchery |
| POL/OS/HT/CR/07/5/A | Manage hatchery operations |

**BASIC UNITS OF LEARNING**

# DEMONSTRATE COMMUNICATION SKILLS

**UNIT CODE: POL/OS/HT/BC/01/5/A**

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate communication skills. It involves meeting communication needs of clients and colleagues, contributing to the development of communication strategies, conducting workplace interviews, facilitating group discussions and representing the organisation

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Meet communication needs of clients and colleagues | 1. Specific communication needs of clients and colleagues are identified and met based on workplace requirements 2. Different communication approaches are identified and applied according to clients’ needs 3. Conflict is identified and addressed as per the standards of the organization |
| 1. Contribute to the development of communication strategies | 1. Strategies for internal and external dissemination of information are developed, promoted, implemented and reviewed as per organizations’ strategic plan 2. Channels of communication are established and reviewed based on the workplace needs 3. Communication training needs are identified and provided according to SOPs 4. Work related network and relationship are maintained based on workplace requirements 5. Negotiation and conflict resolution strategies are maintained as per the workplace procedures |
| 1. Conduct workplace interviews | 1. ***Communication strategies*** are identified and employed in ***interview situations*** based on workplace requirements 2. Records of interviews are made and maintained in accordance with organizational procedures 3. Effective questioning, listening and nonverbal communication techniques are used based on needs |
| 1. Facilitate group discussions | 1. Mechanisms to enhance ***effective group interaction*** are identified and implemented according to workplace requirements 2. Strategies to encourage group participation are identified and used as per organizations’ procedures 3. Meetings objectives and agenda are set and followed based on workplace requirements 4. Relevant information is provided and feedback obtained according to set protocols 5. Evaluation of group communication strategies is undertaken in accordance with workplace guidelines 6. Specific communication needs of individuals are identified and addressed as per individual needs |
| 1. Represent the organization | 1. Relevant presentation are researched and presented based on internal or external communication forums requirements Presentation is delivered in a clear and sequential manner as per the predetermined time 2. Presentation is made as per appropriate media 3. Difference views are respected based on workplace procedures 4. Written communication is done as per organizational standards 5. Inquiries are responded according to organizational standard |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Communication strategies may include but not limited to: | * Language switch * Comprehension check * Repetition * Asking confirmation * Paraphrase * Clarification request * Translation * Restructuring * Approximation * Generalization |
| 1. Effective group interaction may include but not limited to: | * Identifying and evaluating what is occurring within an interaction in a non-judgmental way * Using active listening * Making decision about appropriate words, behavior * Putting together response which is culturally appropriate * Expressing an individual perspective * Expressing own philosophy, ideology and background and exploring impact with relevance to communication * Openness and flexibility in communication |
| 1. Interview situations may include but not limited to: | * Establishing rapport * Eliciting facts and information * Facilitating resolution of issues * Developing action plans * Diffusing potentially difficult situations |

**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:

* Active listening
* Giving/receiving feedback
* Interpretation of information
* Role boundaries setting
* Negotiation
* Communication

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Communication process
* Dynamics of groups and different styles of group leadership
* Communication skills relevant to client groups
* Flexibility in communication

**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. Met communication needs of clients and colleagues 2. Contributed to the development of communication strategies 3. Conducted interviews 4. Facilitated group discussions 5. Represented the organization |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Observation 2. Oral questioning 3. Written test 4. Portfolio of Evidence 5. Interview 6. Third party report |
| 1. Context of Assessment | Competency may be assessed:   1. On the job 2. Off the job 3. During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE NUMERACY SKILLS**

**UNIT CODE: POL/OS/HT/BC/02/5/A**

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate numeracy skills. it involves calculating with whole numbers and familiar fractions, decimals, and percentages for work estimating, measuring, and calculating with routine metric measurements for work, using routine maps and plans for work, interpreting, drawing and constructing 2D and 3D shapes for work, interpreting routine tables, graphs and charts for work, collecting data and constructing routine tables and graphs for work and using basic functions of calculator.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Calculate with whole numbers and familiar fractions, decimals and percentages for work | 1. Mathematical information that may be partly embedded in routine workplace tasks and texts is selected and interpreted as per SOPs 2. Whole numbers and routine or familiar fractions, decimals and percentages including familiar rates are interpreted and comprehended as per SOPs 3. Calculations which may involve a number of steps are performed as per SOPs 4. Calculations done with whole numbers and routine or familiar fractions, decimals and percentages as per SOPs 5. Conversion between equivalent forms of fractions, decimals and percentages is done as per SOPs 6. Order of operations is applied to solve multi-step calculations as per SOPs 7. Problem solving strategies are appropriately applied as per SOPs 8. Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per SOPs 9. Formal and informal mathematical language and symbolism are used to communicate the result of the task as per SOPs. |
| 2. Estimate, measure, and calculate with routine metric measurements for work | 1. Measurement information in workplace tasks and texts are selected and interpreted in accordance with workplace requirements 2. Appropriate routine measuring equipment are identified and selected in accordance with workplace requirements 3. Measurements are estimated and made using correct units as per measurement manuals. 4. Estimations and calculations done as per routine measurements 5. Conversions performed routinely as per metric units 6. Problem solving processes are used to undertake the tasks as per workplace procedures. 7. Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per workplace procedures 8. Information is recorded using mathematical language and symbols appropriate to discuss the task as per workplace procedures. |
| 3. Use routine maps and plans for work | 1. Features are identified in routine maps and plans as per SOPs 2. Symbols and keys in routine maps and plans are clearly explained as per SOPs 3. Orientation of map to North is identified and interpreted as per SOPs 4. Understanding of direction and location is clearly demonstrated as per SOPs 5. Simple scale is applied to estimate length of objects, or distance to location or object as per SOPs 6. Directions are given and received using both formal and informal language as per SOPs |
| 4. Interpret, draw and construct 2D and 3D shapes for work | 1. Two dimensional shapes and routine three dimensional shapes identified in everyday objects and in different orientations in accordance with job specifications 2. The use and application of shapes elaborately explained as per SOPs 3. Formal and informal mathematical language and symbols used to describe and compare the features of two dimensional shapes and routine three dimensional shapes as per workplace procedures. 4. Common angles identified in accordance with SOPs 5. Common angles in everyday objects are appropriately estimated as per SOPs 6. Formal and informal mathematical language are used to describe and compare common angles as per workplace procedures. 7. Common geometric instruments used to draw two dimensional shapes as per SOPs 8. Routine three dimensional objects constructed from given nets as per SOPs. |
| 5. Interpret routine tables, graphs and charts for work | 1. Routine tables, graphs and charts identified in predominately familiar texts and contexts as per tables and graph manuals 2. Common types of graphs and their different uses identified as per SOPs 3. Features of tables, graphs and charts identified as per workplace procedures 4. Information in routine tables, graphs and charts located and interpreted as per workplace procedures 5. Calculations are perform to interpret information as per SOPs 6. How statistics can inform and persuade interpretations is explained as per SOPs 7. Misleading statistical information is identified as per workplace procedures. 8. Information relevant to the workplace is discussed as per workplace procedures. |
| 6. Collect data and construct routine tables and graphs for work | 1. Features of common tables and graphs identified as per SOPs 2. Uses of ***different tables and graphs*** identified as per job specifications 3. Data and variables to be collected are determined as per workplace procedures. 4. The audience is determined as per the workplace procedures 5. Method of data collection is select as per job requirement 6. Data is collected as per SOPs 7. Information is collated in a table as per SOPs 8. Suitable scale and axes determined as per job specifications 9. Graph to present information is drafted and drawn as per SOPs 10. Data checked to ensure that it meets the expected results and context as per workplace procedures 11. Information is reported or discussed using formal and informal mathematical language as per workplace procedures |
| 7. Use basic functions of calculator | * 1. Keys are identified and used for ***basic functions on a calculator*** as per SOPs   2. Calculation is done using whole numbers, money and routine decimals and percentages as per SOPs   3. Calculation done with routine fractions and percentages as per SOPs   4. Order of operations is applied to solve multi-step calculations as per SOPs   5. Results are interpreted, displayed and recorded as per workplace procedures   6. Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per workplace procedures   7. Formal and informal mathematical language and appropriate symbolism and conventions used to communicate the result of the task as per workplace procedures. |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Use basic functions of calculator may include but not limited to: | * Addition * Multiplication * Calculate ratios * Conversion of ratios into percentages |
| 1. Different tables and graphs may include but not limited to: | * Bar Graphs * Flow Charts * Pie Charts * Pictograph * Line Graphs * Time Series Graphs * Stem and Leaf Plot * Histogram * Dot Plot * Scatter plot |

**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:

* Measuring
* Logical thinking
* Computing
* Drawing of graphs
* Applying mathematical formulas
* Analytical

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Types of common shapes
* Differentiation between two dimensional shapes / objects
* Formulae for calculating area and volume
* Types and purpose of measuring instruments
* Units of measurement and abbreviations
* Fundamental operations (addition, subtraction, division, multiplication)
* Rounding techniques
* Types of fractions
* Different types of tables and graphs
* Meaning of graphs, such as increasing, decreasing, and constant value
* Preparation of basic data, tables & graphs

**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. Calculated correctly with whole numbers and routine or familiar fractions, decimals and percentages 2. Estimated, measured and calculated with routine metric measurements 3. Applied simple scale to estimate length of objects or distance to location or object 4. Used formal and informal mathematical language to describe and compare common angles 5. Used common geometric instruments to draw two dimensional shapes 6. Collected data and constructed routine tables and graphs 7. Used basic functions of calculator correctly |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   1. Observation 2. Oral questioning 3. Written test 4. Portfolio of Evidence 5. Interview 6. Third party report |
| 1. Context of Assessment | Competency may be assessed in:   1. On the job 2. Off the job 3. Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE DIGITAL LITERACY**

**UNIT CODE: POL/OS/HT/BC/03/5/A**

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate digital literacy. It involves identifying appropriate computer software and hardware, applying security measures to data, hardware, software in automated environment, applying computer software in solving tasks, applying internet and email in communication at workplace, applying desktop publishing in official assignment and preparing presentation packages.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Identify appropriate computer software and hardware | 1. Concepts of ICT are determined in accordance with computer equipment 2. Classifications of computers are determined in accordance with manufacturers specification 3. ***Appropriate computer software*** is identified according to manufacturer’s specification 4. ***Appropriate computer hardware*** is identified according to manufacturer’s specification 5. Functions and commands ofoperating system are determined in accordance withmanufacturer’s specification |
| 1. Apply security measures to data, hardware, software in automated environment | 1. ***Data security and privacy are classified*** in accordance with the prevailing technology 2. ***Security threats*** areidentified, **and *control measures*** are applied in accordance with laws governing protection of ICT 3. Computer threats and crimes are detected in accordance with Information security management guidelines 4. Protection against computer crimes is undertaken in accordance with laws governing protection of ICT |
| 1. Apply computer software in solving tasks | 1. ***Word processing concepts***are applied in resolving workplace tasks, report writing and documentation as per job requirements 2. ***Word processing utilities*** are applied in accordance with workplace procedures 3. Worksheet layout is prepared in accordance with work procedures 4. Worksheet is build and data manipulated in the worksheet in accordance with workplace procedures 5. Continuous data manipulated on worksheet is undertaken in accordance with work requirements 6. Database design and manipulation is undertaken in accordance with office procedures 7. Data sorting, indexing, storage, retrieval and security is provided in accordance with workplace procedures |
| 1. Apply internet and email in communication at workplace | 1. Electronic mail addresses are opened and applied in workplace communication in accordance with office policy 2. Office internet functions are defined and executed in accordance with office procedures 3. ***Network configuration*** is determined in accordance with office operations procedures 4. Official World Wide Web is installed and managed according to workplace procedures |
| 1. Apply desktop publishing in official assignments | 1. Desktop publishing functions and tools are identified in accordance with manufactures specifications 2. Desktop publishing tools are developed in accordance with work requirements 3. Desktop publishing tools are applied in accordance with workplace requirements 4. Typeset work is enhanced in accordance with workplace standards |
| 1. Prepare presentation packages | 1. Types of presentation packages are identified in accordance with office requirements 2. Slides are created and formulated in accordance with workplace procedures 3. Slides are edited and run in accordance with work procedures 4. Slides and handouts are printed according to work requirements |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Appropriate computer hardware may include but not limited to: | * Computer case * Monitor * keyboard * mouse |
| 1. Data security and privacy may include but not limited to: | * Confidentiality of data * Cloud computing * Integrity -but-curious data surfing |
| 1. Security and control measures may include but not limited to: | * Counter measures against cyber terrorism * Risk reduction * Cyber threat issues * Risk management * Pass wording |
| 1. Security threats may include but not limited to: | * Cyber terrorism * Hacking |

**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:

* Analytical skills
* Interpretation
* Typing
* Communication
* Basic ICT skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Software concept
* Functions of computer software and hardware
* Data security and privacy
* Computer security threats and control measures
* Technology underlying cyber-attacks and networks
* Cyber terrorism
* Computer crimes
* Detection and protection of computer crimes
* Laws governing protection of ICT
* Microsoft suite

**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. Identified and controlled security threats 2. Detected and protected computer crimes 3. Applied word processing in office tasks 4. Designed, prepared work sheet and applied data to the cells in accordance to workplace procedures 5. Opened electronic mail for office communication as per workplace procedure 6. Installed internet and World Wide Web for office tasks in accordance with office procedures 7. Integrated emerging issues in computer ICT applications 8. Applied laws governing protection of ICT |
| 1. Resource Implications | The following resources should be provided:   1. Tablets 2. Laptops 3. Desktop computers 4. Calculators 5. Internet 6. Smart phones 7. Operation Manuals |
| 1. Methods of Assessment | Competency may be assessed through:   1. Written Test 2. Observation 3. Practical assignment 4. Interview/Oral Questioning |
| 1. Context of Assessment | Competency may be assessed in:   1. Off the job 2. On the job setting 3. Industrial attachment |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE ENTREPRENEURIAL SKILLS**

**UNIT CODE : POL/OS/HT/BC/04/5/A**

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate understanding of entrepreneurship. It involves demonstrating understanding of an entrepreneur, entrepreneurship, and self-employment, identifying entrepreneurship opportunities, creating entrepreneurial awareness, applying entrepreneurial motivation, developing business innovative strategies and developing business plan.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA** |
| 1. Demonstrate understanding of an Entrepreneur | 1. Entrepreneurs and Businesspersons are distinguished as per principles of entrepreneurship 2. ***Types of entrepreneurs*** are identified as per principles of entrepreneurship 3. Ways of becoming an Entrepreneur are identified as per principles of Entrepreneurship 4. ***Characteristics of Entrepreneurs*** are identified as per principles of Entrepreneurship 5. Factors affecting Entrepreneurship development are explored as per principles of Entrepreneurship |
| 1. Demonstrate understanding of Entrepreneurship and self-employment | 1. Entrepreneurship and self-employment are distinguished as per principles of entrepreneurship 2. Importance of self-employment is analysed based on business procedures and strategies 3. ***Requirements for entry into self-employment*** are identified according to business procedures and strategies 4. Role of an Entrepreneur in business is determined according to business procedures and strategies 5. Contributions of Entrepreneurs to National development are identified as per business procedures and strategies 6. Entrepreneurship culture in Kenya is explored as per business procedures and strategies 7. Born or made Entrepreneurs are distinguished as per entrepreneurial traits |
| 1. Identify Entrepreneurship opportunities | 1. Sources of business ideas are identified as per business procedures and strategies 2. Business ideas and opportunities are generated as per business procedures and strategies 3. Business life cycle is analysed as per business procedures and strategies 4. Legal aspects of business are identified as per procedures and strategies 5. Product demand is assessed as per market strategies 6. Types of ***business environment*** are identified and evaluated as per business procedures 7. Factors to consider when evaluating business environment are explored based on business procedure and strategies 8. Technology in business is incorporated as per best practice |
| 1. Create entrepreneurial awareness | 1. ***Forms of businesses*** are explored as per business procedures and strategies 2. Sources of business finance are identified as per business procedures and strategies 3. Factors in selecting source of business finance are identified as per business procedures and strategies 4. ***Governing policies*** on Small Scale Enterprises (SSEs) are determined as per business procedures and strategies 5. Problems of starting and operating SSEs are explored as per business procedures and strategies |
| 1. Apply entrepreneurial motivation | 1. ***Internal and external motivation*** factors are determined in accordance with motivational theories 2. Self-assessment is carried out as per entrepreneurial orientation 3. Effective communications are carried out in accordance with communication principles 4. Entrepreneurial motivation is applied as per motivational theories |
| 1. Develop innovative business strategies | 1. Business innovation strategies are determined in accordance with the organization strategies 2. Creativity in business development is demonstrated in accordance with business strategies 3. ***Innovative business strategies*** are developed as per business principles 4. Linkages with other entrepreneurs are created as per best practice 5. ICT is incorporated in business growth and development as per best practice |
| 1. Develop Business Plan | 1. Identified Business is described as per business procedures and strategies 2. Marketing plan is developed as per business plan format 3. Organizational/Management plan is prepared in accordance with business plan format 4. Production/operation plan in accordance with business plan format 5. Financial plan is prepared in accordance with the business plan format 6. Executive summary is prepared in accordance with business plan format 7. Business plan is presented as per best practice |

**RANGE**

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

|  |  |
| --- | --- |
| 1. **Variable** | **Range** |
| 1. Types of entrepreneurs may include but not limited to: | * Innovators * Imitators * Craft * Opportunistic * Speculators |
| 1. Characteristics of Entrepreneurs may include but not limited to: | * Creative * Innovative * Planner * Risk taker * Networker * Confident * Flexible * Persistent * Patient * Independent * Future oriented * Goal oriented |
| 1. Requirements for entry into self-employment may include but not limited to | * Technical skills * Management skills * Entrepreneurial skills * Resources * Infrastructure |
| 1. Internal and external motivation may include but not limited to: | * Interest * Passion * Freedom * Prestige * Rewards * Punishment * Enabling environment * Government policies |
| 1. Business environment may include but not limited to: | * External * Internal * Intermediate |
| 1. Forms of businesses may include but not limited to: | * Sole proprietorship * Partnership * Limited companies * Cooperatives |
| 1. Governing policies may include but not limited to: | * Increasing scope for finance * Promoting cooperation between entrepreneurs and private sector * Reducing regulatory burden on entrepreneurs * Developing IT tools for entrepreneurs |
| 1. Innovative business strategies may include but not limited to: | * New products * New methods of production * New markets * New sources of supplies * Change in industrialization |

**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:

* Analytical
* Management
* Problem-solving
* Root-cause analysis
* Communication

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Decision making
* Business communication
* Change management
* Competition
* Risk
* Net working
* Time management
* Leadership
* Factors affecting entrepreneurship development
* Principles of Entrepreneurship
* Features and benefits of common operational practices, e. g., continuous improvement (kaizen), waste elimination,
* Conflict resolution
* Health, safety and environment (HSE) principles and requirements
* Customer care strategies
* Basic financial management
* Business strategic planning
* Impact of change on individuals, groups and industries
* Government and regulatory processes
* Local and international market trends
* Product promotion strategies
* Market and feasibility studies
* Government and regulatory processes
* Local and international business environment
* Relevant developments in other industries
* Regional/ County business expansion strategies

**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. Distinguished entrepreneurs and business persons correctly 2. Identified ways of becoming an entrepreneur appropriately 3. Explored factors affecting entrepreneurship development appropriately 4. Analysed importance of self-employment accurately 5. Identified requirements for entry into self-employment correctly 6. Identified sources of business ideas correctly 7. GeneratedBusiness ideas and opportunities correctly 8. Analysed business life cycle accurately 9. Identified legal aspects of business correctly 10. Assessed product demand accurately 11. Determined Internal and external motivation factors appropriately 12. Carried out communications effectively 13. Identified sources of business finance correctly 14. Determined Governing policy on small scale enterprise appropriately 15. Explored problems of starting and operating SSEs effectively 16. Developed Marketing, Organizational/Management, Production/Operation and Financial plans correctly 17. Prepared executive summary correctly 18. Determined business innovative strategies appropriately 19. Presented business plan effectively |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place |
| 1. Methods of Assessment | Competency may be assessed through:   1. Written tests 2. Oral questions 3. Third party report 4. Interviews 5. Portfolio |
| 1. Context of Assessment | Competency may be assessed:   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE EMPLOYABILITY SKILLS**

**UNIT CODE: POL/OS/HT/BC/05/5/A**

**Unit Description**

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating interpersonal communication, critical safe work habits, leading small teams, planning and organizing work, maintaining professional growth and development, demonstrating workplace learning, problem solving skills and managing workplace ethics.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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 self-management | 1. Personal vision, mission and goals are formulated based on potential and in relation to organization objectives 2. Emotional intelligence is demonstrated as per workplace requirements. 3. Individual performance is evaluated and monitored according to the agreed targets. 4. Assertiveness is developed and maintained based on the requirements of the job. 5. Accountability and responsibility for own actions are demonstrated based on workplace instructions. 6. Self-esteem and a positive self-image are developed and maintained based on values. 7. Time management, attendance and punctuality are observed as per the organization policy. 8. Goals are managed as per the organization’s objective 9. Self-strengths and weaknesses are identified based on personal objectives |
| 1. Demonstrate interpersonal communication | 1. Writing skills are demonstrated as per communication policy 2. Negotiation and persuasion skills are demonstrated as per communication policy 3. Internal and external stakeholders’ needs are identified and interpreted as per the communication policy 4. Communication networks are established based on workplace policy 5. Information is shared as per communication policy |
| 1. Demonstrate critical safe work habits | 1. Stress is managed in accordance with workplace policy. 2. Punctuality and time consciousness is demonstrated in line with workplace policy. 3. Personal objectives are integrated with organization goals based on organization’s strategic plan. 4. ***Resources*** are utilized in accordance with workplace policy. 5. Work priorities are set in accordance to workplace goals and objectives. 6. Leisure time is recognized and utilized in line with personal objectives. 7. ***Drugs and substances of abuse*** are identified and avoided based on workplace policy. 8. HIV and AIDS prevention awareness is demonstrated in line with workplace policy. 9. Safety consciousness is demonstrated in the workplace based on organization safety policy. 10. ***Emerging issues*** are identified and dealt with in accordance with organization policy. |
| 1. Lead small teams | 1. Performance targets for the ***team*** are set based on organization’s objectives 2. Duties are assigned in accordance with the organization policy. 3. ***Forms of communication*** in a team are established according to organization’s policy. 4. Team performance is evaluated based on set targets as per workplace policy. 5. Conflicts are resolved between team members in line with organization policy. 6. Gender related issues are identified and mainstreamed in accordance workplace policy. 7. Human rights and fundamental freedoms are identified and respected as Constitution of Kenya 2010. 8. Healthy relationships are developed and maintained in line with workplace. |
| 1. Plan and organize work | 1. Task requirements are identified as per the workplace objectives 2. Task is interpreted in accordance with safety (OHS ), environmental requirements and quality requirements 3. Work activity is organized with other involved personnel as per the SOPs 4. Resources are mobilized, allocated and utilized to meet project goals and deliverables. 5. Work activities are monitored and evaluated in line with organization procedures. 6. Job planning is documented in accordance with workplace requirements. 7. Time is managed achieve workplace set goals and objectives. |
| 1. Maintain professional growth and development | 1. Personal training needs are identified and assessed in line with the requirements of the job. 2. ***Training and career opportunities*** are identified and utilized based on job requirements. 3. Resources for training are mobilized and allocated based organizations and individual skills needs. 4. Licensees and certifications relevant to job and career are obtained and renewed as per policy. 5. Work priorities and personal commitments are balanced and managed based on requirements of the job and personal objectives. 6. Recognitions are sought as proof of career advancement in line with professional requirements. |
| 1. Demonstrate workplace learning | 1. Learning opportunities are sought and managed based on job requirement and organization policy. 2. Improvement in performance is demonstrated based on courses attended. 3. Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job 4. Time and effort is invested in learning new skills based on job requirements 5. Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy. 6. New systems are developed and maintained in accordance with the requirements of the job. 7. Awareness of personal role in workplace ***innovation*** is demonstrated based on requirements of the job. |
| 1. Demonstrate problem solving skills | 1. Creative, innovative and practical solutions are developed based on the problem 2. Independence and initiative in identifying and solving problems is demonstrated based on requirements of the job. 3. Team problems are solved as per the workplace guidelines 4. Problem solving strategies are applied as per the workplace guidelines 5. Problems are analyzed and assumptions tested as per the context of data and circumstances |
| 1. Demonstrate workplace ethics | 1. Policies and guidelines are observed as per the workplace requirements 2. Self-worth and professionalism is exercised in line with personal goals and organizational policies 3. Code of conduct is observed as per the workplace requirements 4. Integrity is demonstrated as per legal requirement |

**RANGE**

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

|  |  |
| --- | --- |
| **Range** | **Variable** |
| 1. Drug and substance abuse may include but not limited to: | Commonly abused   * Alcohol * Tobacco * Miraa * Over-the-counter drugs * Cocaine * Bhang * Glue |
| 1. Feedback may include but not limited to: | * Verbal * Written * Informal * Formal |
| 1. Relationships may include but not limited to: | * Man/Woman * Trainer/trainee * Employee/employer * Client/service provider * Husband/wife * Boy/girl * Parent/child * Sibling relationships |
| 1. Forms of communication may include but not limited to: | * Written * Visual * Verbal * Non verbal * Formal and informal |
| 1. Team may include but not limited to: | * Small work group * Staff in a section/department * Inter-agency group |
| 1. Personal growth may include but not limited to: | |  | | --- | | * Growth in the job * Career mobility * Gains and exposure the job gives * Net workings * Benefits that accrue to the individual as a result of noteworthy performance | |
| 1. Personal objectives may include but not limited to: | * Long term * Short term * Broad * Specific |
| 1. Trainings and career opportunities may include but not limited to | * Participation in training programs * Technical * Supervisory * Managerial * Continuing Education * Serving as Resource Persons in conferences and workshops |
| 1. Resource may include but not limited to: | * Human * Financial * Hardware * Software |
| 1. Innovation may include but not limited to: | * New ideas * Original ideas * Different ideas * Methods/procedures * Processes * New tools |
| 1. Emerging issues may include but not limited to: | * Terrorism * Social media * National cohesion * Open offices |
| 1. Range of media for learning may include but not limited to: | * Mentoring * peer support and networking * IT and courses |

**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
* Critical thinking
* Observation
* Organizing
* Negotiation
* Monitoring
* Evaluation
* Record keeping
* Problem solving
* Decision Making
* Resource utilization
* Resource mobilization

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Work values and ethics
* Company policies
* Company operations, procedures and standards
* Occupational Health and safety procedures
* Fundamental rights at work
* Personal hygiene practices
* Workplace communication
* Concept of time
* Time management
* Decision making
* Types of resources
* Work planning
* Resources and allocating resources
* Organizing work
* Monitoring and evaluation
* Record keeping
* Workplace problems and how to deal with them
* Gender mainstreaming
* HIV and AIDS
* Drug and substance abuse
* Leadership
* Safe work habits
* Professional growth and development
* Technology in the workplace
* Emerging issues
* Social media
* Terrorism
* National cohesion

**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. Conducted self-management 2. Demonstrated interpersonal communication 3. Demonstrated critical safe work habits 4. Led small teams 5. Planned and organized work 6. Maintained professional growth and development 7. Demonstrated workplace learning 8. Demonstrated problem solving skills 9. Demonstrated workplace ethics |
| 1. Resource Implications | |  | | --- | | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place | |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Oral questioning 2. Portfolio of evidence 3. Third Party Reports 4. Written tests |
| 1. Context of Assessment | Competency may be assessed:   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE ENVIRONMENTAL LITERACY**

**UNIT CODE: POL/OS/HT/BC/06/5/A**

**UNIT DESCRIPTION**

This unit describes the competencies required to demonstrate understanding of environmental literacy. It involves controlling environmental hazard, controlling control environmental pollution, complying with workplace sustainable resource use, evaluating current practices in relation to resource usage, identifying environmental legislations/conventions for environmental concerns, implementing specific environmental programs and monitoring activities on environmental protection/programs.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Control environmental hazard | 1. ***Storage methods*** for environmentally***hazardous*** materials are strictly followed according to environmental regulations and OSHS. 2. ***Disposal methods*** of hazardous wastes are followed always according to environmental regulations and OSHS. 3. ***PPE*** is used according to OSHS. |
| 1. Control environmental Pollution control | 1. Environmental pollution ***control measures*** are compiled following standard protocol. 2. Procedures for solid waste management are observed according to Environmental Management and Coordination Act 1999 3. Methods for minimizing ***noise pollution*** is complied with based on *Noise* and Excessive Vibration *Pollution and*  *Control Regulations*, 2009 |
| 1. Demonstrate sustainable resource use | 1. Methods for minimizing wastage are complied with. 2. Waste management procedures are employed following principles of 3Rs (Reduce, Reuse, Recycle) 3. Methods for economizing and reducing resource consumption are practiced as per the Environmental Management and Coordination Act 1999 |
| 1. Evaluate current practices in relation to resource usage | 1. Information on resource efficiency **systems and procedures** are collected and provided to the work group where appropriate. 2. Current resource usage is measured and recorded by members of the work group. 3. Current purchasing strategies are analyzed and recorded according to industry procedures. 4. Current work processes to access information and data is analyzed following enterprise protocol. |
| 1. Identify Environmental legislations/conventions for environmental concerns | 1. Environmental ***legislations/conventions*** and local ordinances are identified according to the different ***environmental aspects/impact*** 2. ***Industrial standard/environmental practices*** are described according to the different environmental concerns |
| 1. Implement specific environmental programs | 1. Programs/Activities are identified according to organizations policies and guidelines. 2. Individual roles/responsibilities are determined and performed based on the activities identified. 3. Problems/constraints encountered are resolved in accordance with organizations’ policies and guidelines 4. Stakeholders are consulted based on company guidelines |
| 1. Monitor activities on Environmental protection/Programs | 1. Activities are periodically monitored and evaluated according to the objectives of the environmental Program 2. Feedback from stakeholders are gathered and considered in proposing enhancements to the program based on consultations 3. Data gathered are analyzed based on evaluation requirements 4. Recommendations are submitted based on the findings 5. Management support systems are set/established to sustain and enhance the program 6. Environmental incidents are monitored and reported to concerned/proper authorities |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. PPE may include but not limited to: | * Mask * Gloves * Goggles * Safety hat * Overall * Hearing protector * Safety boots |
| 1. Environmental pollution control measures may include but not limited to: | * Methods for minimizing or stopping spread and ingestion of airborne particles * Methods for minimizing or stopping spread and ingestion of gases and fumes * Methods for minimizing or stopping spread and ingestion of liquid wastes |
| 1. Waste management procedures may include but not limited to: | * Sorting * Storing of items * Recycling of items * Disposal of items |
| 1. Resources may include but not limited to: | * Electric * Water * Fuel * Telecommunications * Supplies * Materials |
| 1. Workplace environmental hazards may include but not limited to: | * Biological hazards * Chemical and dust hazards * Physical hazards |
| 1. Organizational systems and procedures may include but not limited to: | * Supply chain, procurement and purchasing * Quality assurance * Making recommendations and seeking approvals |

**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:

* Observation
* Measuring
* Writing
* Communication
* Analytical
* Monitoring
* Evaluation

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Storage methods of environmentally hazardous materials
* Disposal methods of hazardous wastes
* Usage of PPE Environmental regulations
* OSHS
* Types of pollution
* Environmental pollution control measures
* Different solid wastes
* Solid waste management
* Different noise pollution
* Methods of minimizing noise pollution
* Solid Waste Act
* Methods of minimizing wastage
* Waste management procedures
* Economizing of resource consumption
* 3Rs principle
* Types of resources
* Techniques in measuring current usage of resources
* Calculating current usage of resources
* Types of workplace environmental hazards
* Environmental regulations
* Environmental regulations applying to the enterprise.
* Measurement and recording of current resource usage
* Analysis current work processes to access information and data Analysis of data and information
* Identification of areas for improvement
* Resource consuming processes
* Determination of quantity and nature of resource consumed
* Analysis of resource flow of different parts of the resource flow process
* Use/conversion of resources
* Causes of low efficiency of use
* Increasing the efficiency of resource use
* Inspection of resource use plans
* Regulations/licensing requirements
* Determine benefit/cost for alternative resource sources
* Benefit/costs for different alternatives
* Components of proposals
* Criteria on ranking proposals
* Regulatory requirements
* Proposals for improving resource efficiency
* Implementation of resource efficiency plans
* Procedures in monitor implementation
* Adjustments of implementation plan
* Inspection of new resource usage

**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. Controlled environmental hazard 2. Controlled environmental pollution 3. Demonstrated sustainable resource use 4. Evaluated current practices in relation to resource usage 5. Demonstrated knowledge of environmental legislations and local ordinances according to the different environmental issues /concerns. 6. Described industrial standard environmental practices according to the different environmental issues/concerns. 7. Resolved problems/ constraints encountered based on management standard procedures 8. Implemented and monitored environmental practices on a periodic basis as per company guidelines 9. Recommended solutions for the improvement of the Program 10. Monitored and reported to proper authorities any environmental incidents |
| 1. Resource Implications | The following resources should be provided:   1. Workplace with storage facilities 2. Tools, materials and equipment relevant to the tasks (ex. Cleaning tools, cleaning materials, trash bags, etc.) 3. PPE 4. Manuals and references 5. Legislation, policies, procedures, protocols and local ordinances relating to environmental protection 6. Case studies/scenarios relating to environmental Protection |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Observation 2. Oral questioning 3. Written test 4. Interview/Third Party Reports 5. Portfolio of evidence |
| 1. Context of Assessment | Competency may be assessed:   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES**

**UNIT CODE: POL/OS/HT/BC/07/5/A**

**UNIT DESCRIPTION**

This unit specifies the competencies required to identify workplace hazards and risk, identify and implement appropriate control measures and implement OSH programs, procedures and policies/ guidelines

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Identify workplace hazards and risk | 1. ***Hazards*** in the workplace are identified ***based their indicators*** 2. Risks and hazards are evaluated based on legal requirements. 3. ***OSH concerns*** raised by workers are addressed as per legal requirements. |
| 1. Control OSH hazards | 1. Hazard prevention ***and control measures*** are implemented as per legal requirement. 2. Risk assessment is conductedand a risk matrix developed based on likely impact. 3. ***Contingency measures***, including ***emergency procedures*** during workplace ***incidents and emergencies*** are recognized and established in accordance with organization procedures. |
| 1. Implement OSH programs | 1. Company OSH program are identified, evaluated and reviewed based on legal requirements. 2. Company OSH programs are implemented as per legal requirements. 3. Workers are capacity built on OSH standards and procedures as per legal requirements 4. ***OSH-related records*** are maintained as per legal requirements. |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Hazards may include but are not limited to: | * Physical hazards * Biological hazards * Chemical hazards * Ergonomics * Psychological factors * Physiological factors * Safety hazards * Unsafe workers’ act |
| 1. Indicators may include but are not limited to: | * Increased of incidents of accidents, injuries * Increased occurrence of sickness or health complaints/ symptoms * Common complaints of workers related to OSH * High absenteeism for work-related reasons |
| 1. Evaluation and/or work environment measurements may include but are not limited to: | * Health Audit * Safety Audit * Work Safety and Health Evaluation * Work Environment Measurements of Physical and Chemical Hazards |
| 1. OSH issues and/or concerns may include but are not limited to: | * Workers’ experience/observance on presence of work hazards * Unsafe/unhealthy administrative arrangements (prolonged work hours, no break time, constant overtime, scheduling of tasks) * Reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/guidelines |
| 1. Prevention and control measures may include but are not limited to: | * Eliminate the hazard * Isolate the hazard * Substitute the hazard with a safer alternative * Use administrative controls to reduce the risk * Use engineering controls to reduce the risk * Use personal protective equipment * Safety, Health and Work Environment Evaluation * Periodic and/or special medical examinations of workers |
| 1. Safety gears /PPE (Personal Protective Equipment’s) may include but are not limited to: | * Arm/Hand guard, gloves * Eye protection (goggles, shield) * Hearing protection (ear muffs, ear plugs) * Hair Net/cap/bonnet * Hard hat * Face protection (mask, shield) * Apron/Gown/coverall/jump suit * Anti-static suits * High-visibility reflective vest |
| 1. Appropriate risk controls | * Eliminate the hazard altogether * Isolate the hazard from anyone who could be harmed * Substitute the hazard with a safer alternative * Use administrative controls to reduce the risk * Use engineering controls to reduce the risk * Use personal protective equipment |
| 1. Contingency measures may include but are not limited to: | * Evacuation * Isolation * Decontamination * Emergency personnel |
| 1. Emergency procedures may include but are not limited to: | * Fire drill * Earthquake drill * Basic life support/CPR * First aid * Spillage control * Decontamination of chemical and toxic * Disaster preparedness/management * Set of fire-extinguisher |
| 1. Incidents and emergencies may include but are not limited to: | * Chemical spills * Equipment/vehicle accidents * Explosion * Fire * Gas leak * Injury to personnel * Structural collapse * Toxic and/or flammable vapors emission. |
| 1. OSH-related Records may include but are not limited to: | * Medical/Health records * Incident/accident reports * Sickness notifications/sick leave application * OSH-related trainings obtained |

**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
* Interpersonal
* Presentation
* Risk assessment
* Evaluation
* Critical thinking
* Problem solving
* Negotiation

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* General OSH Principles
* Occupational hazards/risks recognition
* OSH organizations providing services on OSH evaluation and/or work environment measurements (WEM)
* National OSH regulations; company OSH policies and protocols
* Systematic gathering of OSH issues and concerns
* General OSH principles
* National OSH regulations
* Company OSH and recording protocols, procedures and policies/guidelines
* Training and/or counseling methodologies and strategies

**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. Identified hazards in the workplace based their indicators 2. Evaluated workplace hazards based on legal requirements. 3. Addressed OSH concerns raised by workers as per legal requirements. 4. Implemented hazard prevention and control measures as per legal requirement. 5. Conducted risk assessment as per legal requirement. 6. Developed risk matrix based on likely impact. 7. Recognized and established contingency measures in accordance with organization procedures. 8. Identified, evaluated and reviewed company OSH program based on legal requirements. 9. Implemented company OSH programs as per legal requirements. 10. Capacity built workers on OSH standards and procedures as per legal requirements 11. Maintained OSH-related records as per legal requirements. |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Observation 2. Oral questioning 3. Written test 4. Portfolio of Evidence 5. Interview 6. Third party report |
| 1. Context of Assessment | Competency may be assessed:   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# COMMON COMPETENCIES

# PREPARE AND INTERPRET TECHNICAL DRAWINGS

**UNIT CODE: POL/OS/HT/CC/01/5/A**

**UNIT DESCRIPTION**

This unit covers the competencies required to prepare and interpret technical drawings. It involves competencies to select, use and maintain drawing equipment and materials. It also involves producing plain and solid geometry drawings.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicised terms are elaborated in the Range)*** |
| --- | --- |
| 1. Use and maintain drawing equipment and materials | 1. ***Drawing materials*** are identified and gathered according to task requirements 2. Drawing equipment are used and maintained as per manufacturer’s instructions 3. Drawing materials are used as per workplace procedures 4. Waste materials are disposed in accordance with workplace procedures and ***environmental legislations*** 5. 1.6***Personal Protective Equipment*** is used according to occupational safety and health regulations |
| 2. Produce plane geometry drawings | 1. Different types of lines used in drawing and their meanings are identified according to standard drawing conventions 2. Different types of ***geometric forms*** are constructed according to standard conventions 3. Different types of angles are constructed according to principles of trigonometry 4. Different types of angles are measured using appropriate measuring tools |
| 3. Produce solid geometry drawings | 1. Freehand sketching of different types of geometric forms, tools, equipment, diagrams is conducted 2. Drawings of patterns are interpreted according to standard conventions 3. Patterns are developed in accordance with standard conventions |

**RANGE**

| **Variable** | **Range** |
| --- | --- |
| 1. Drawing equipment May include but is not limited to: | * Drawing boards * T and set squares * Drawing sets * Computers with CAD packages |
| 1. Drawing materials May include but is not limited to: | * Drawing Papers * Pencils * Erasers * Masking Tapes * Paper clips |
| 1. Environmental legislations May include but is not limited to: | * EMCA 1999 * NCA |
| 1. Personal protective equipment May include but is not limited to: | * Dust coats, * Closed leather shoes |
| 1. Geometric forms May include but is not limited to: | * Circles * Triangles * Rectangles * Parallelogram * Polygons * Pyramids * Conic Sections * Prisms * Loci |
| 1. Standard drawing conventions May include but is not limited to: | * British standards |

**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:

* Critical thinking
* Drawing
* Interpretation
* Drawing equipment handling
* Analysis and synthesis
* Communication
* Inter personal

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Drawing equipment and materials
* Freehand sketching
* Lettering
* Geometrical constructions
* Types of drawings
* Types of lines
* Sketches and drawings of simple patterns

###### ***EVIDENCE GUIDE***

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

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Applied and adhered to safety procedures   2. Cared and maintained drawing equipment   3. Interpreted circuit, assembly and lay out diagrams   4. Applied appropriate technical standards, used proper tools and equipment for a given task   5. Produced sketches and drawings |
| 1. Resource Implications for competence certification | Resources the same as that of workplace are advised to be applied.   * 1. Drawing room   2. Drawing equipment and materials   3. Computers |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical tests   2. Observation |
| 1. Context of Assessment | Competency may be assessed individually in the actual workplace or a simulated work place setting |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CORE UNITS OF LEARNING

# CONSTRUCT POULTRY STRUCTURES

**UNIT CODE:** **POL/OS/HT/CR/01/5/A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to construct poultry structures. It involves preparing to construct, construction of poultry house, and equipping the poultry house.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Prepare and plan to construct poultry house | 1. Suitable poultry house structure for construction selected based on production system, cost and farmers’ preferences 2. Site of ***poultry house*** determined based on ***poultry production manual***s (***ppms***) and NEMA regulations. 3. Size of poultry house determined according to the population / type of birds to be kept and stocking density 4. Size and number of ***poultry house structures*** determined according to population / type of birds, production system 5. Specifications for various parts of poultry house are determined according to the ppms and AEZ 6. Poultry structures design is drawn according to scale 7. Biosecurity measures are designed according to regulations of NEMA, DVS and work place policy 8. Personal Protection Equipment and Apparel ***(ppes)***are identified, gathered and donned based on job requirements 9. Occupational safety and health procedures are adhered to according to work place procedures 10. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures 11. Construction materials chosen based on its affordability and suitability 12. Quality of construction materials assessed based on design specifications 13. Procurement method selected for construction materials based on work place policy 14. Construction materials procured based on selected procurement method 15. Means of transportation selected based on costs, quantity and nature of the materials 16. Construction materials transported to construction site according to work place policy 17. Construction materials stored according to work place policy 18. Records of acquired construction materials kept according to work place policy |
| 1. Construct poultry house | 1. Poultry house layout pegged according to design 2. Poultry house foundation excavated based on house design, topography and soil type 3. Poultry house foundation built based on type of construction materials and design 4. ***Poultry house parts*** constructed as per design and type of construction materials 5. Poultry house structures constructed as per design and type of construction materials available 6. ***Biosecurity structures and equipment*** are constructed and installed respectively in accordance with the designs and PPM 7. Constructed poultry house inspected and assessed according to design |
| 1. Equip poultry house | 1. Necessary ***poultry house equipment and materials*** areidentified according to production system 2. Procurement method selected based on work place policy 3. Poultry house equipment and materials procured based on selected procurement method 4. Poultry house equipment and materials tested and installed or stored as per specifications in the poultry production manuals |

**RANGE**

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

|  |  |  |
| --- | --- | --- |
| **Variable** | **Range** | |
| 1. Poultry production manuals(PPM) may Includes but not limited to | * National Poultry Development Programme Manual * Breeder’s manuals | |
| 1. PPE may includes but not limited to | * Overalls * Gumboots * Nose and mouth mask | * Goggles * Gloves * Head gear |
| 1. Poultry house equipment and material may includes but not limited to: | * Waterers * Feeders * Thermometer (maximum – minimum) * Heat sources | * Litter material * Curtains * False ceilings * Hygrometer * Light sources |
| 1. Poultry house parts may includes but not limited to: | * Walls * Floor * Roof | |
| 1. Biosecurity structures and equipment may includes but not limited to | * Boundary fence (electric or stone wall) * Gate with restriction signage * Visitor identification badges * Colour coded clothing for different parts of the farm e.g. Feed stores, egg sorting and flock houses * Entry showers, both at the gate and at the house sites * Foot bathes and vehicle sprayers * Hand washing gadgets * Poultry house site egg fumigation chambers * Whitewashed water tanks, with treated water ( chlorine,TH4 etc) * Litter management shovels, mechanical turning gadgets * Post mortem rooms * Mortality disposal pits * Rodent and pest control traps * Vaccine cold storage facilities e.g. Designated fridges * Centrifuges for separating blood into serum * Serum tubes and vials * Bird weighing scales * Store for cleaning agents, sanitizers and disinfectants | |
| 1. Environmental protection regulations may include but limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 | |
| 1. Poultry house structures may include but not limited to | * Nest boxes * Perches * Cages * Pallets | * Electrical / water lines * Slated floors * Brooder * Feed store |

**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:

* Automated equipment operation skills
* Carpentry
* Cleaning and disinfection
* Communication
* Creativity
* Fabrication
* Interpretation skills
* Masonry
* Multi-tasking
* Negotiation
* Numeracy
* Observation
* Planning
* Problem solving
* Technical drawing
* Time management

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Aezs
* Air flow
* Animal welfare
* Area measurements and conversions
* Carpentry
* Cleaning and disinfection procedures
* Costing
* EIA
* Environmental physiology of poultry
* Existing poultry production legislations
* Feed storage
* Feeding and watering spacing allowances
* Geometry (symmetry)
* Handling and assessment construction materials
* House orientation
* Length and weight conversion rates
* Litter management
* Masonry
* Occupational health and safety procedures
* Operation and maintenance of equipment
* Poultry behavior
* Poultry housing requirements
* Predator / rodent control
* Procurement procedures
* Record keeping
* Scale measurements
* Security and Biosecurity measures
* Spacing requirements
* Stocking density
* Storage methods
* Technical / plan drawing and design
* Topography
* Transport logistics
* Types of construction materials
* Types of poultry house designs
* Types of poultry house equipment
* Types of poultry houses
* Types of predators

**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. Designed poultry structure according to PPM recommendations   2. Interpreted layout plan and structural design accurately.   3. Identified and donned correct ppes.   4. Measured and pegged structure layout accurately   5. Equipped poultry house with required poultry house structures and equipment   6. Mixed construction materials in the recommended ratio.   7. Observed occupational safety and health measures in the working environment   8. Observed laid down environmental protection measures at the work place   9. Completed the construction within the set timelines |
| 1. Resource Implications for competence certification | The following Resources **MUST** be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning   4. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MANAGE BREEDING FLOCK

**UNIT CODE:** **POL/OS/HT/CR/02/5/A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to manage poultry breeding flock. It involves preparing and planning to breed poultry, housing, mating, feeding, vaccination, performance monitoring, egg handling and record maintenance for the breeding flock.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Prepare and plan to breed poultry | 1. Poultry identification system is designed according to farm breeding procedures 2. Breeding poultry are ***Identified*** in accordance with the ***poultry production manual (PPM)***and poultry welfare regulations 3. Selection criteria are determined based on breeding goals 4. Breeding poultry are selected for mating based on traits of economic importance 5. ***Breeding management tools, equipment, materials*** and ***supplies*** are identified and assembled in accordance with the PPM 6. ***Personal Protection Equipment and Apparel (PPE)***are identified and gathered based on job requirements 7. Occupational safety and health procedures are adhered to according to work place procedures 8. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures |
| 1. House breeding flock | 1. Housing system is selected based on farm preferences and AEZ 2. House and housing structures are cleaned and sanitized following PPM procedures 3. Breeding flock are placed into the house / housing structures as per ***Animal welfare standards*** 4. Breeding flock grouped according to breeding plan 5. Caged poultry houses cleaned periodically according to PPM guidelines and work place policy 6. Poultry litter is turned and raked periodically according to PPM guidelines and work place policy 7. Laying nests are cleaned periodically based on condition and work place procedures |
| 1. Mate breeding flock | 1. Sex ratio determined as per the PPM 2. Poultry flock are mated using the designed ***mating and breeding systems*** |
| 1. Feed breeding flock | * 1. ***Poultry production and housing systems*** are selected based on available resources and farm production objectives   2. Nutritional requirements of the breeding flock are determined based on type, productivity, sex, age and physiological status   3. Poultry flock is grouped based on their nutritional requirements   4. Feeding regimes for breeding flock are determined according to recommendations in the PPM and ***Animal welfare standards***   5. Feed is weighed according to the poultry flock nutritional requirements and population   6. Drinking water is sanitized as per the PPM   7. Weighed feed is dispensed into feeders or hoppers based on the feeding regime   8. Sanitized drinking water is dispensed *ad libitum* into drinkers   9. Feeding and watering equipment are cleaned and sanitized |
| 1. Vaccinate poultry breeding flock | 1. Poultry vaccination schedule developed according to guidelines of PPM and breeder company, work place policy and disease prevalence 2. ***Preparations*** for vaccination are carried out in accordance with PPM and vaccine manufacturer’s guidelines 3. Poultry vaccine is re-constituted according to manufacturer’s guidelines 4. Poultry vaccines are administered in accordance with developed schedule 5. Vaccinated poultry are observed to ascertain vaccine intake and check for abnormal reactions in accordance with PPM and vaccine manufacturer’s guidelines 6. ***Vaccination details*** are recorded as per PPM guidelines and farm policies |
| 1. Monitor poultry performance | 1. Poultry breeding flock are weighed ***periodically*** using procedures in the PPM 2. Laying percentage is determined based on procedures in the PPM 3. Poultry are culled based on culling criteria |
| 1. Handle poultry eggs | 1. Poultry eggs are collected into egg trays according to procedures described in the PPM and work place regulations 2. Collected eggs are sorted according to PPM guidelines 3. Collected eggs in trays are fumigated in the farm fumigation chamber according to procedures described in the PPM 4. Poultry eggs are sorted based on size, shape, cleanliness, shell strength and colour according to ***regulatory body standards*** 5. Sorted eggs are stored according to PPM recommendations 6. Eggs are selected for hatching according to PPM 7. Selected eggs are stored in a cool storage facility around 12°C - 15°C and 75% relative humidity 8. Selected eggs are transported to the hatchery according to PPM |
| 1. Maintain poultry breeding records | * 1. Data is entered and monitored daily, weekly or monthly as per the chart   2. Poultry breeding records are kept as per PPM |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Statutory requirements may Includes but not limited to | ***Statutory requirements*** required for:   * Importation and sanitary issues * Movement permits for traceability purposes |
| 1. Identified may includes but not limited to | Marking or placing gadgets on birds that distinguish individual birds by;   * Wing tagging * Leg tagging * Comb clipping * Feather colouring * Claw clipping |
| 1. Breeding management tools, equipment, materials and supplies may includes but not limited to | * Insemination syringes * Semen collection funnels * Vaccination syringes and needles * Vaccine droppers * Refrigerators * Cool boxes * Cleaning agents and disinfectants * Brooms and brushes * Rakes, shovels and spades * Sprayers * Mobile feeders and waterers * Weighing scales and balances * Egg trays * Poultry performance, health and pedigree charts * Candling machines * Calculators and computers * Ppes * Vaccines * Identification devices * Catching hooks |
| 1. Poultry production manual (PPM) may includes but limited to: | * National Poultry Development Programme Manual * Breeder’s manuals by breeders like Cobb and Issa Brown |
| 1. Personal Protection Equipment and Apparel (PPE) may includes but limited to: | * Overalls * Gumboots * Nose and mouth mask * Goggles * Gloves * Head gear |
| 1. Environmental protection regulations may includes but limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 |
| 1. Mating systems may includes but limited to: | * Natural mating * Artificial insemination |
| 1. Poultry production systems may includes but limited to: | * Intensive * Semi intensive / backyard * Extensive |
| 1. Poultry housing systems may includes but limited to: | * Open sided houses * Environmentally controlled houses |
| 1. Preparations may includes but not limited to | Activities that are carried out before, during and after vaccination;   * Provision of anti-stress nutritional premixes * Feed and water withdrawal * Confirmation of bird numbers to determine dosage * Provision of disinfectant free water * Positioning vaccine receptacles in the poultry house for oral vaccines * Confine and restrain poultry for injectable and ocular-nasal vaccines |
| 1. Vaccination details may includes but not limited to | * Type of vaccine * Type of disease vaccinated against * Age of poultry * Date and time of vaccination * Date of manufacture and expiry of vaccine * Vaccine source and batch number * Route of vaccine administration (IM, wing stab, sub cutaneous, intra nasal, intra ocular or spray) * Number of birds vaccinated * Identification of birds (flock, type, breed) |
| 1. Periodically may includes but is not limited to | * Weekly * Fortnightly * Monthly |
| 1. Regulatory body standards may includes but is not limited to | Standards by bodies like:  Kenya Bureau of Standards (KEBS)  State Directorate of Veterinary Services (DVS) |
| 1. Animal welfare standards may Includes but not limited to | Standards by KEBS, IOE, AU-IBAR |

**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:

* Artificial insemination
* Communication
* Computer
* Egg handling
* Egg sorting
* Numeracy
* Observation
* Poultry handling
* Poultry health applied skills
* Record keeping
* Vaccination
* Weighing

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Breeding systems
* Egg anatomy
* Egg formation process
* Egg handling
* Egg sorting
* Egg storage
* Mating systems
* Poultry production systems
* Poultry behaviour
* Poultry farm hygiene and biosecurity.
* Poultry feed intake
* Poultry housing requirement in different AEZ.
* Poultry housing systems
* Poultry identification methods
* Poultry Immunology
* Poultry movement statutory requirements
* Poultry nutritional requirements
* Poultry spacing requirements
* Poultry welfare
* Procurement procedures
* Reconstitution of vaccines
* Record keeping
* Refrigeration methods
* Restraining methods
* Selection and culling criteria
* Traits of economic importance in poultry
* Types and breeds of poultry
* Types and functions of nutrients
* Types of drinkers and waterers
* Types of feed additives
* Types of poultry records
* Types of vaccines
* Vaccination sites
* Water quality

**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. Selected superior genotypes to be parents of subsequent generations according to animal breeding principles   2. Assigned identification marks for breeding birds following recommended procedures in the poultry breeding manual   3. Allocated the correct mating ratios for breeding birds according to the PPM   4. Followed right procedures of semen collection and artificial insemination according to the PPM   5. Implemented vaccination schedule for breeding poultry   6. Documented correct poultry pedigree and performance data   7. Observed occupational safety and health measures in the working environment   8. Observed laid down environmental protection measures at the work place |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning   4. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MANAGE POULTRY BROODING

**UNIT CODE:** **POL/OS/HT/CR/03/5/A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to manage poultry brooding. It involves preparing chick brooder, acquiring day-old chicks, feeding brooder chicks, managing brooder house micro climate, maintaining brooder hygiene, performing chick vaccination, controlling poultry vermin, controlling poultry predators and monitoring chick performance.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Prepare chick brooder | * ***Brooder construction materials*** are selected as per farm practices * Brooder is constructed as per poultry production guidelines. * ***Equip chick brooder*** as per poultry production guidelines * Cleaning and disinfection of the brooder based on sops * Brooder equipment are cleaned and sterilized as per the sops. * Bedding materials selected as per PPM guidelines * Test-running of equipment done as per farm practice |
| 1. Acquire day-old chicks | * Day- old chicks are sourced as per organizational requirement * Day-old chicks are ordered based on the ***hatchery practices***. * Day-old chicks are transported as per sops and ***animal welfare guidelines*** * Placement of day old chicks is done as per poultry production guidelines |
| 1. Feed brooder chicks | * Type of feed is determined as per the poultry production guidelines. * Quantity of feed is determined as per the poultry production guidelines. * Water requirements is determined as per poultry production guidelines * ***Tools and feeding equipment*** are selected based on work place procedures * Brooding chicks are fed as per poultry production guidelines |
| 1. Manage brooder house micro climate | * Micro climate ***tools and equipment*** are identified as per sops. * ***Micro climate*** variations are assessed as per poultry production guidelines. * Brooder micro-climate is moderated as per the farm practice and PPM guidelines. |
| 1. Maintain brooder hygiene | * Bio-safety structures/facilities are determined as per work place requirements and PPM guidelines * Bio-safety measures are carried out as per sops * Bio-safety conformity is monitored as per work place requirement |
| 1. Perform chick vaccination | * Chick vaccination schedule is determined as per poultry production guidelines * Vaccination equipment are determined as per the farm practice * Chick vaccination records are kept as per farm requirements * Vaccination procedures are dependent on type of vaccine * Post-vaccination behavior is monitored as per farm practices |
| 1. Control poultry vermin | * Vermin control measures are determined as per poultry health guidelines * Vermin control is executed as per work place practices |
| 1. Control chick predators | * Predator threat assessed as per locality * Type of predator identified as per the animal health guidelines * Predator control measures are determined as per poultry production guidelines * Predator control is executed as per work place practices |
| 1. Monitor chick performance | * ***Poultry vices*** are monitored as per work place practices * ***Performance assessment*** equipment and tools are identified based on poultry production guidelines * Performance assessment is carried out as per work place procedures * Vices are monitored as per farm practice * Chicks are culled as per work place procedures. |

**RANGE**

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

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| --- | --- | --- |
| **Variable** | **Range** | |
| 1. Brooder construction materials may include but not limited to: | * Cardboard * Wooden pegs * Litter material |  |
| 1. Chick brooder equipment and tools may include but not limited to | * Brooder thermometer * Charcoal jiko * Infra-red bulb * Gas burner * Kerosene lamp | * Chick feeder * Chick drinker * Hygrometer |
| 1. Hatchery practices. may Includes but not to: | * Sexing * Vaccination * Chick handling * Chick ordering procedures * Chick payment procedures | |
| 1. Micro climate may include but not to: | * Humidity * Temperature * Light * Ventilation/ air flow | |
| 1. Poultry vices may include but not to: | * Pecking * Cannibalism | |
| 1. Poultry assessment may include but not to: | * Weighing * Physical appearance * Gait * Behavior | |
| 1. Animal welfare guidelines may include but not limited to | * Standards by KEBS, IOE, AU-IBAR | |

**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:

* Carpentry
* Communication
* Handling
* Negotiation
* Numeracy
* Observation
* Poultry Handling
* Vaccination skills

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Algebra
* Bio-safety
* Carpentry
* Environmental physiology
* Immunology
* Micro biology
* Poultry behaviour
* Poultry health
* Poultry management
* Poultry nutrition
* Predator control
* Procurement
* Scales and measurement
* Toxicology

**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. Chick brooder set-up accurately   2. Stocking density done accurately   3. Brooder micro- climate moderated appropriately   4. Chick feeds provided correctly   5. Bio- safety measures observed   6. Vaccination schedule followed as planned   7. Vermin and predators-controlled measures put in place. |
| 1. Resource Implications for competence certification | The following resources **MUST** be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# PRODUCE POULTRY FEED

**UNIT CODE:** **POL/OS/HT/CR/04/5/A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to produce poultry feed. It involves designing and equipping of the poultry feed milling plant, planning and preparing to formulate poultry feed, formulating poultry feed, evaluating feed formulation process, and completing poultry feed formulation

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Design and equip poultry feed milling plant | 1. Site of feed milling plant determined based on standards and regulations of ***regulatory bodies***. 2. Size of feed milling plant determined according to intended output 3. Specifications for various parts of feed milling plant (roof, walls, and floor) are determined according to on International Feed Industry Federation (IFIF) FAO Manual, KEBS and NEMA standards and regulations. 4. Feed milling plant design is drawn according to scale 5. Necessary ***feed milling machinery***, ***equipment and materials*** identified and selected according to production system 6. Procurement method selected based on work place policy 7. Feed milling machinery, equipment and materials procured based on selected procurement method 8. Feed milling machinery and equipment are installed as per specifications in the manufacturers manual 9. Wild bird proof facilities are put in place based on good manufacturing practices (GMP) for feed milling 10. Facilities for showering and change of clothes are provided based on GMP 11. Feed milling machinery and equipment are test run and assessed according to manufacturer’s instructions |
| 1. Plan and prepare to formulate poultry feed | 1. Poultry feed to formulate is determined based on the ***production type***, age of poultry and guidelines of feed manufacturing regulatory bodies. 2. Feed formulation ***tools, equipment, materials*** and ***supplies*** are identified and assembled based on requirements of the job and feed formulation manual. 3. Personal Protection Equipment and Apparel are identified, gathered and worn based on job requirements. 4. Occupational safety and health procedures are adhered to according to work place procedures 5. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures 6. Hazard Analysis Critical Control Points (HACCP) are identified based on GMP 7. Feed formulation ***ingredients*** are selected and sourced based on cost, availability and nutritional values. 8. Feed formulation ingredients are separately stored ***feed manufacturing guidelines*** 9. Ingredients are sampled for laboratory analysis according to ***standard sampling procedures*** 10. On farm feed ingredient analysis is carried out using standard feed analysis procedures according to work place procedures 11. Suppliers of feed ingredients are contracted based on repute and work place regulations 12. Packaging materials are labelled as per feed manufacturing guidelines 13. Feed formulation method is selected based on available ingredients |
| 1. Formulate poultry feed | 1. Feed ration is formulated based on cost, feedstuff nutritional content, poultry nutritional requirements and feed manufacturing guidelines 2. Feed ingredients are prepared according to feed manufacturing guidelines 3. Prepared feed ingredients are mixed as per feed manufacturing guidelines 4. Mixed ration is further processed according to manufacturing guidelines and work place regulations 5. Mixed ration is packaged as per feed manufacturing guidelines 6. Packaged feed is further labelled according to GMP and feed manufacturing guidelines |
| 1. Evaluate feed formulation process | 1. Mixed ration is sampled for evaluation according to sampling procedures and ***regulatory bodies*** standards 2. Feed analysis results interpreted and applied during feeding according to the livestock production manual 3. Errors are reported and rectified based on workplace policy and feed formulation guidelines. 4. Costs of inputs, overheads and labour are determined from records 5. Selling price is determined and set based on profit margin, production costs and work place regulations |
| 1. Complete poultry feed formulation | 1. Packaged feed is stored in accordance with animal feed manufacturing guidelines 2. Poultry feed is dispatched and distributed based GMP and work place policy 3. Feed handling equipment and structures are cleaned, sanitized and disinfected in accordance with good manufacturing practices and work place policy 4. Human and traffic movement into the feed manufacturing plant is restricted according to GMP and work place policy 5. Sanitization and PPE facilities are provided for feed manufacturing plant personnel according to GMP and work place policy 6. A recall system is established for contaminated feed 7. Feed formulation records are documented in accordance with work place policy 8. Feed formulation reports are disseminated to relevant authorities in accordance with work place policy 9. Reusable materials and supplies are stored based on the manufacturer’s instructions. 10. Non-recyclable waste materials are disposed off in due regard to environment protection regulations. |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Regulatory bodies may include but not limited to | * International Feed Industry Federation (IFIF) FAO * KEBS * NEMA |
| 1. Feed milling machinery, equipment and materials may includes but not limited to | * Mills – Hammer, disc and rotary, front loaders * Mixers – vertical, horizontal or transverse * Mixer wagons * Fabricated mixers * Scales and balances * Sampling probes * Gunny bags * Sealing machines * Moisture measuring machine / hygrometer * Shovels and spades * Rake * Sealing twines and needle * Ppes * Wheelbarrows * Polythene /tarpaulin * Transport vehicle * Tare bridge * Pelleting units /presses * Extruder * Liquid addition facility * Bag sieving machines * Crushers * Polishers * Sorting machines * Packaging and labeling |
| 1. Production types may includes but not limited to | Chicken kept primarily for;   * Table eggs * Meat * Hatching / breeding |
| 1. Environmental protection regulations may includes but limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 |
| 1. Ingredients may includes but not limited to | * Feedstuff * Additives |
| 1. Standard sampling procedures may includes but not limited to | * Random sampling * Systematic sampling * Purposive sampling |
| 1. Feed manufacturing guidelines may includes but not limited to | Animal feed regulatory authorities specifications on;   * Manufacturing procedures * Nutrient content * Processing procedures * Mixing procedures * Ingredient inclusion levels * Labeling * Storage |

**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:

* Analytical
* Communication
* Computer
* Creativity
* Equipment and machine operation
* Judging
* Mixing
* Negotiation
* Numeracy
* Operation of feed milling equipment and machinery
* Planning
* Sampling
* Servicing of feed milling machinery and equipments
* Technical drawing

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Animal feed processing procedures
* Anti-nutritive factors
* Biosecurity measures
* Book Keeping
* Costing
* Digestion process in poultry
* EIA
* Existing feed milling legislations
* Feed classification
* Feed formulation equipment and machine maintenance
* Feed formulation methods
* Feed intake factors
* Feed labeling requirements
* Feed mixing methods
* Feed qualities
* Feed safety Marketing and extension
* Feed sampling methods
* Forms of feed presentation
* Good Manufacturing Practices (GMP)
* Guidelines of feed manufacturing
* Hazard Analysis Critical Control Point (HACCP)
* Inclusion levels
* Installation, operations, calibrations and maintenance of feed milling machinery and equipment
* Methods of feed formulation
* Nutrient content of feedstuff
* Nutritional requirements of poultry
* Occupational hazards and preventive measures
* Pest control
* Poultry behaviour
* Poultry digestive system
* Pricing methods
* Procurement procedures
* Sampling procedures
* Scale measurements
* Sources and types of machines and equipment for feed milling,
* Storage conditions
* Technical / plan drawing and design
* Topography
* Types of costs
* Types of poultry feed
* Types of stores
* Types, breeds, varieties and classes of poultry
* Types, sources and functions of nutrients in poultry

**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. Designed feed milling plant according to recommendations of regulatory bodies   2. Identified the right feeds for particular poultry classes   3. Formulated feed ration that meets nutritional requirements for intended classes of poultry   4. Feedstuff prepared in correct form of presentation   5. Feed ingredients are thoroughly mixed   6. Feed packaged and stored as recommended   7. Labeled feed packages correctly   8. Adhered to occupational safety and health procedures   9. Observed laid down environmental protection measures at the work place |
| 1. Resource Implications for competence certification | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Product analysis   4. Oral questioning   5. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MANAGE POULTRY HEALTH AND WELFARE

**UNIT CODE:** **POL/OS/HT/CR/5/5/A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to manage poultry health. It involves farm biosecurity, acquisition of health control equipment and materials, parasite and predator control, vaccination, disease and vices control, and record keeping

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Manage poultry biosecurity | * 1. Biosecurity measures are designed according to regulations of NEMA, DVS and work place policy   2. ***Biosecurity structures and equipment*** are constructed and installed respectively in accordance with the designs and ***poultry production manuals (PPM)***   3. Biosecurity structures and equipment are ***organized*** in accordance with the PPM   4. Standard operational procedures are posted at strategic points in the poultry farm according to GMP   5. Human and traffic movement into the poultry farm is ***restricted and monitored*** according to GMP and work place policy   6. ***Sanitization*** and ***PPE*** facilities are provided for poultry farm personnel according to GMP and work place policy   7. Personal Protection Equipment and Apparel are identified, gathered and donned based on job requirements   8. Poultry flock is observed daily to detect abnormal behaviour or mortalities   9. Occupational safety and health procedures are adhered to according to work place procedures   10. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures |
| 1. Acquire poultry health equipment and materials | 1. Flock health management ***tools, equipment, materials*** and ***supplies*** are identified as per work place policy. 2. Flock health management tools are stored and maintained as per work place policy. |
| 1. Manage poultry vaccination | 1. Poultry vaccination schedule developed according to guidelines of PPM and breeder company, work place policy and disease prevalence 2. Vaccination ***preparations*** are done accordance with PPM and vaccine manufacturer’s guidelines 3. Poultry vaccine is re-constituted according to manufacturer’s guidelines 4. Poultry vaccines are administered in accordance with developed vaccination schedule 5. Vaccinated poultry are observed to ascertain vaccine intake and check for abnormal reactions in accordance with PPM and vaccine manufacturer’s guidelines 6. ***Vaccination details*** are recorded as per PPM guidelines and farm policies |
| 1. Control poultry parasites, pests and predators | 1. Poultry flock performance, behaviour and droppings are observed daily to detect presence of internal and external parasites as per PPM guidelines 2. Poultry flock is de-wormed to control internal parasites following drug manufacturer’s guidelines 3. External parasites are controlled using guidelines in the PPM 4. Pests and predators are controlled using guidelines in the PPM 5. ***Parasite control details*** are recorded as per PPM guidelines and farm policies |
| 1. Manage poultry diseases and vices | 1. Sick poultry are isolated for further observation as per PPM guidelines 2. Qualified veterinary professional is contacted for diagnosis and treatment of sick birds. 3. Vice control measures are applied as per PPM. 4. Chemicals repellents are applied around wound sites to prevent cannibalism 5. ***Samples*** are collected for diagnostic laboratory analysis using standard sampling procedures |
| 1. Maintain poultry health records | 1. Poultry health record charts are designed as per PPM 2. Data is entered and monitored daily, weekly or monthly as per the chart 3. Poultry record results acted upon as per PPM 4. Poultry health records are kept as per PPM |

**RANGE**

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

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| **Variable** | **Range** |
| 1. Biosecurity structures and equipment may includes but not limited to | * Boundary fence (electric or stone wall) * Gate with restriction signage * Visitor identification badges * Colour coded clothing for different parts of the farm e.g. Feed stores, egg sorting and flock houses * Entry showers, both at the gate and at the house sites * Foot bathes and vehicle sprayers * Hand washing gadgets * Poultry house site egg fumigation chambers * Whitewashed water tanks, with treated water (chlorine, TH4 etc) * Litter management shovels, mechanical turning gadgets * Post mortem rooms * Mortality disposal pits * Rodent and pest control traps * Vaccine cold storage facilities e.g. Designated fridges * Centrifuges for separating blood into serum * Serum tubes and vials * Bird weighing scales * Store for cleaning agents, sanitizers and disinfectants |
| 1. Poultry production manuals (PPM)   may Includes but not limited to | * National Poultry Development Programme Manual * Breeder’s manuals by breeders like Cobb and Issa Brown |
| 1. Organized may includes but not limited to | * Placing disinfectants in foot baths and spray jet tanks * Placing fumigants in fumigation chamber tanks |
| 1. Restricted and monitored may includes but not limited to: | * Placing screening barriers at sentry gates * Implementing visitor identification systems e.g. Badges * Having visitors to fill a questionnaire indicating previous visits to other poultry farms in the past one week * Barring vehicles and unauthorized persons from accessing poultry houses and surrounding vicinities |
| 1. PPE may includes but not limited to | * Overalls * Gumboots * Nose and mouth mask * Goggles * Gloves * Head gear |
| 1. Environment protection regulations may includes but not limited to | Guidelines designed and enforced by:   * National Environmental Management Authority * Ministry of Health |
| 1. Tools, equipment, materials and supplies may includes but not limited to | * Sprayers * De-beakers * Chicken catching rods |
| 1. Preparations may includes but not limited to | Activities that are carried out before, during and after vaccination;   * Provision of anti-stress nutritional premixes * Feed and water withdrawal * Confirmation of bird numbers to determine dosage * Provision of disinfectant free water * Positioning vaccine receptacles in the poultry house for oral vaccines * Confine and restrain poultry for injectable and ocular-nasal vaccines |
| 1. Vaccination details may includes but not limited to | * Type of vaccine * Type of disease vaccinated against * Age of poultry * Date and time of vaccination * Date of manufacture and expiry of vaccine * Vaccine source and batch number * Route of vaccine administration (IM, wing stab, sub cutaneous, intra nasal, intra ocular or spray) * Number of birds vaccinated * Identification of birds (flock, type, breed) |
| 1. Parasite control details may includes but not limited to | * Type of vaccine * Type of disease vaccinated against * Age of poultry * Date and time of vaccination * Date of manufacture and expiry of vaccine * Number of birds vaccinated * Identification of birds (flock, type, breed) |
| 1. Samples may include but not limited to | * Swabs * Blood * Feces * Organs * Feed * Sick bird * Carcass * Water * Vaccines * Litter material * Parasites |

**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:

* Analytical
* Animal health applied skills
* Cleaning
* Communication
* De-beaking
* Diagnostic
* Farm equipment operation skills
* Negotiation
* Observation
* Poultry handling and care
* Record keeping
* Vaccination

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Animal health care
* Animal welfare
* Cleaning and disinfection procedures
* De-beaking procedure
* Microbiology
* Mode of disease and parasite spread
* Parasitology
* Poultry behaviour
* Poultry biosecurity measures
* Poultry gross anatomy and basic physiology
* Poultry Immunology
* Poultry nutritional disorders
* Procurement procedures
* Reconstitution of vaccines
* Record keeping
* Refrigeration methods
* Sampling procedures
* Signs of ill health in poultry
* Types of cleaning agents, sanitizers and disinfectant
* Types of external and internal poultry parasites
* Types of parasitic poultry diseases
* Types of poultry records
* Types of vaccines
* Vaccination sites
* Vaccinology

**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. Implemented biosecurity measures   2. Controlled internal and external parasites   3. Implemented vaccination programme   4. Isolated poultry showing signs of disease for further observation   5. De-beaked poultry using recommended procedures   6. Observed occupational safety and health measures in the working environment   7. Observed laid down environmental protection measures at the work place |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning   4. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# CONSTRUCT POULTRY HATCHERY

**UNIT CODE:** **POL/OS/HT/CR/06/5/A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to construct poultry structures. It involves preparing and planning to construct, construction, and equipping of poultry hatchery.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Prepare and plan to construct poultry hatchery | 1. Size of poultry breeding and hatchery ***structure*** determined according to the design 2. Specifications for various parts of the structure are interpreted according to the design, poultry production manual, AEZ and regulations set out by DVS, NCA and NEMA. 3. Personal Protection Equipment and Apparel ***(ppes)***are identified, gathered and donned based on job requirements 4. Occupational safety and health procedures are adhered to according to work place procedures 5. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures 6. Construction materials procured and stored according to work place policy 7. Records of acquired construction materials kept according to work place policy |
| 1. Construct poultry hatchery | 1. Hatchery construction contract is awarded based on work place policy 2. Hatchery site is cleared based on condition and vegetation type 3. Structure layout is pegged according to design 4. Structure foundation is excavated based on house design, topography and soil type 5. Building of structure foundation is supervised based on type of construction materials and design 6. Construction of ***structure parts*** is supervised as per design and type of construction materials |
| 1. Equip poultry hatchery | 1. Necessary ***poultry hatchery structure equipment and materials*** are gathered according to production objective and system 2. Structure equipment and materials installed and arranged as per instructions of the manager and specifications in the poultry production manuals |

**RANGE**

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

|  |  |
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| **Variable** | **Range** |
| Structure mayincludes but not limited to | * Breeding poultry house * Hatchery unit |
| 1. Ppes may includes but not limited to | * Overalls * Gumboots * Nose and mouth mask * Goggles * Gloves * Head gear |
| 1. Environmental protection regulations may includes but limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 |
| 1. Structure parts may includes but not limited to | * Walls, floor and / or roof of the following hatchery parts;   **Clean area**   * Fence around the facility * Main entry door * Shower blocks * Egg fumigation room * Egg storage room * Final egg selection and loading room * Setter room * Egg candling area   **Dirty area**   * Hatching machines room * Chick box store * Chick sorting room * Chick processing room (for vaccination, boxing and placing * Walls, curtains, floor and roof of the breeder poultry house |
| 1. Poultry hatchery structure equipment and materials may includes but not limited to: | *For breeder poultry house;*   * Source – charcoal burner (jiko), Electric bulbs (infrared, UV or ordinary) and gas burners * Litter material – wood shavings, sand, dried grass, chopped paper, coffee or rice husks, straw, peat * Brooder guard – ply wood, carton, card board or plain iron sheets * Feeders – trough or round (automatic or manual) * Waterers – open or nipple (automatic or manual) * Disinfectants * Brooms * Shovels * Rakes * Detergents * Brooder maximum-minimum thermometer * Cool box * Vaccines * Syringes * Needles – (two pronged for fowl pox) * Baits and traps * Bait boxes * Poultry feeds and feed ingredients * Feed transport equipment – buckets, wheelbarrows, augers or automated machinery   ***For poultry hatchery;***   * Dumper or macerator for disposal of hatching waste (un-hatched eggs, shell debris, dead chicks and fluff i.e. Dust from hatching process) * Incubators * Egg sorting tables * Egg loading machine * Egg setting trays * Hatching trays/baskets * Vaccination needles and syringes * Vaccine storage refrigerator * Thermometer for monitoring the vaccine fridge * Chick crates * Branded chick carton boxes * Chick box lining materials |
| 1. Poultry production manuals (PPM) may   Includes but not limited to | * National Poultry Development Programme Manual * Breeder’s manuals by breeders like Cobb and Issa Brown |

**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:

* Automated poultry hatchery and production equipment operation skills
* Carpentry
* Cleaning and disinfection
* Communication
* Creativity
* Fabrication
* Interpretation
* Masonry
* Multi-tasking
* Negotiation
* Numeracy
* Observation
* Planning
* Time management

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Air conditioning
* Air flow and aeration
* Area measurements and conversions
* Chick behaviour
* Cleaning, fumigation and disinfection
* Egg incubation and hatching environmental requirements
* Environmental physiology of eggs and poultry
* Egg turning alignment
* Handling and assessment of construction materials
* Hatchery flow
* Incubation and hatching process
* Types of Incubators
* Length and weight conversion rates
* Occupational health and safety procedures
* Operation and maintenance of hatchery equipment
* Record keeping
* Scale measurements
* Security and Biosecurity measures
* Types of hatchery equipment
* Water supply

**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. Interpreted poultry structure layout plan accurately during construction   2. Identified and donned correct PPE as per ppms   3. Measured and pegged structure layout accurately during laying of foundation   4. Equipped poultry structure with required equipment and tools as per guidelines in the PPM   5. Observed occupational safety and health measures in the working environment   6. Observed laid down environmental protection measures at the work place |
| 1. Resource Implications for competence certification | The following resources **MUST** be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning   4. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MANAGE HATCHERY OPERATIONS

**UNIT CODE:** **POL/OS/HT/CR/07/5/A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to manage hatchery operations. It involves acquiring hatching eggs, operation of egg incubators, managing egg hatching, chick sexing, chick vaccination, chick dispatch, managing the unwanted chicks, managing the hatchery biosecurity, and maintaining the hatchery records.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace 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. Acquire hatching eggs | 1. Sources of hatching eggs are identified based on chick market demand and personal preferences 2. Sources of hatching eggs selected based on risk analysis findings and operational costs 3. Hatching eggs are procured using work place procurement procedures 4. Hatching eggs are loaded with broad ends facing up into transportation trays 5. Hatching eggs transported from source following recommended hatching egg handling guidelines in the ***poultry production manuals (PPM)*** 6. Hatching eggs are received and inspected at the hatchery in accordance with PPM guidelines 7. Hatching eggs are sorted into storage trays with broad ends facing up in accordance with PPM guidelines 8. Hatching eggs in storage trays are fumigated in accordance with PPM guidelines 9. Hatching eggs are stored at a temperature of between 12°C – 18°C in preparation for incubation |
| 1. Operate egg incubators | 1. Hatching eggs are retrieved from cold store into the egg traying room using recommended ***hatching egg handling regulations*** 2. ***Incubation chamber parameters*** are set according to incubator manufacturers guidelines, PPM regulations and hatchery sops 3. Hatching eggs are transferred into setting trays with broad ends facing up following recommended hatching egg handling regulations 4. Setting trays with hatching eggs are loaded onto setting trolleys following recommended hatching egg handling regulations 5. Loaded trolleys are driven / pushed into incubation chamber and locked in for incubation. |
| 1. Manage egg hatching | 1. Eggs are removed from the incubation chamber on the 18th day post setting following recommended hatching egg handling regulations 2. Eggs are candled to remove non fertile ones and those with dead embryos in accordance with procedures in the PPM 3. In ovo vaccination is carried out on fertile eggs with developing embryos in accordance with procedures in the PPM 4. Fertile eggs with developing embryos are transferred in a flat position into hatching baskets 5. Loaded hatching baskets are transferred into hatching chamber / machine 6. Hatching process is monitored from the 20th day onwards for 33 hours in accordance with procedures in the PPM 7. Hatching baskets with chicks, un-hatched eggs and hatching debris are pulled from the hatching chamber / machine on the 21st day 8. Hatched, dry and healthy chicks are removed from the hatching baskets and transferred to chick cartons / crates 9. Unhatched eggs are analyzed to determine cause of embryonic death according to procedures in the PPM |
| 1. Perform chick sexing | 1. Hatched chicks are ***assessed*** to distinguish males from females in accordance with organizational preferences and market demand 2. Males are separated from females in accordance with work place procedures |
| 1. Vaccinate sexed chicks | 1. Chick vaccination schedule developed according to guidelines of PPM, work place policy and disease prevalence 2. Vaccination ***preparations*** are done accordance with PPM and vaccine manufacturer’s guidelines 3. Chick vaccine is re-constituted according to manufacturer’s guidelines 4. Chick vaccines are administered in accordance with developed schedule 5. Vaccinated chicks are observed to ascertain vaccine intake and check for abnormal reactions in accordance with PPM and vaccine manufacturer’s guidelines 6. ***Vaccination details*** are recorded as per PPM guidelines and farm policies |
| 1. Dispatch poultry chicks | 1. Poultry chicks are packaged into transportation cartons in accordance with animal welfare regulations, PPM guidelines and work place procedures 2. Packaged chicks are dispatched from hatchery according to placed orders, work place procedures, and ***animal welfare standards*** |
| 1. Manage unwanted chicks | 1. ***Unwanted chicks*** are identified and separated for disposal according to market demand and designed biosecurity measures 2. Unwanted chicks are packaged and dispatched to interested clients based on placed orders and work place procedures |
| 1. Manage hatchery biosecurity measures | 1. Biosecurity structures and equipment are ***organized*** in accordance with the PPM 2. Standard operational procedures are posted at strategic points in the hatchery unit according to GMP 3. Human and traffic movement into the hatchery unit is ***restricted and monitored*** according to GMP and work place policy 4. Sanitization and ***PPE*** facilities are provided for hatchery unit personnel according to GMP and work place policy 5. Personal Protection Equipment and Apparel are identified, gathered and donned based on job requirements 6. Occupational safety and health procedures are adhered to according to work place procedures 7. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures 8. Hatchery buildings and equipment are cleaned, disinfected and fumigated according to GMP regulations and work place policy 9. ***Hatchery waste*** is disposed into waste pits after passing through maceration tanks or rendering units according to GMP regulations and work place policy. 10. Hatchery operations periodically inspected in consultation with the SDVS in accordance with requirements of ***regulatory bodies*** |
| 1. Maintain hatchery records | * 1. Poultry hatchery record charts are designed as per PPM   2. Data is entered and monitored daily, weekly or monthly as per the chart   3. Poultry hatchery record results are interpreted and acted upon according to PPM procedures   4. Poultry hatchery records are kept as per PPM and work place procedures |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Poultry production manuals (PPM) may 2. Includes but not limited to | * National Poultry Development Programme Manual * Breeder’s manuals by breeders like Cobb and Issa Brown |
| 1. Hatching egg handling regulations may includes but not limited to | Egg handling personnel should;   * Sanitize their hands or wear gloves whenever handling eggs * Be free from communicable diseases * Handle eggs with care * Avoid wetting the eggs |
| 1. Incubation chamber parameters may include but not limited to | * Temperature * Humidity * Air quality and flow * Egg inclination |
| 1. Assessed may includes but not limited to | Determination of sex of chick through;   * Colour observation * Vent observation * Feather length observation * DNA sequence |
| 1. Preparations may include but not limited to | Activities that are carried out before, during and after vaccination;   * Provision of anti-stress nutritional premixes * Feed and water withdrawal * Confirmation of bird numbers to determine dosage * Provision of disinfectant free water * Positioning vaccine receptacles in the poultry house for oral vaccines * Confine and restrain poultry for injectable and ocular-nasal vaccines |
| 1. Unwanted chicks may include but not limited to | * Culled chicks * Unhealthy chicks * Deformed chicks * Males in commercial layers |
| 1. Vaccination details may include but not limited to | * Type of vaccine * Type of disease vaccinated against * Age of poultry * Date and time of vaccination * Date of manufacture and expiry of vaccine * Vaccine source and batch number * Route of vaccine administration (IM, wing stab, sub cutaneous, intra nasal, intra ocular or spray) * Number of birds vaccinated * Identification of birds (flock, type, breed) |
| 1. Organized may includes but not limited to | * Placing disinfectants in foot baths and spray jet tanks * Placing fumigants in fumigation chamber tanks |
| 1. Restricted and monitored may includes but not limited to: | * Placing screening barriers at sentry gates * Implementing visitor identification systems e.g. Badges * Having visitors to fill a questionnaire indicating previous visits to other poultry farms in the past one week * Barring vehicles and unauthorized persons from accessing poultry houses and surrounding vicinities |
| 1. PPE may includes but not limited to | * Overalls * Gumboots * Nose and mouth mask * Goggles * Gloves * Head gear |
| 1. Environment protection regulations may includes but not limited to | Guidelines designed and enforced by:   * National Environmental Management Authority * Ministry of Health |
| 1. Hatchery waste may includes but not limited to | * Fluff * Contaminated eggs * Hatched egg shell debris * Pipped chicks (dead in shell) * Unhatched eggs * Dead chicks * Meconium droppings |
| 1. Regulatory bodies may includes but not limited to | * State Directorate of Veterinary Services (SDVS) * Kenya Bureau of Standards * Ministry of Health |
| 1. Animal welfare standards may includes but not limited to | * KEBS, IOE, AU-IBAR |

**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:

* Analytical
* Chick handling
* Cleaning
* Colour sexing
* Communication
* Egg handling
* Feather length sexing
* Hatching machine operation
* Negotiation
* Observation
* Operation of incubation and hatching machines
* Record keeping
* Vaccination
* Vent sexing

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Back-up power supply
* Chick development
* Chick environmental physiology
* Chick transportation
* Chick vaccination at the hatchery
* Chick vaccination methods and routes
* Chick weighing
* Chick welfare
* Cleaning, sanitization and disinfection procedures
* Early chick feeding
* Egg candling techniques
* Egg fumigation
* Egg handling and transportation
* Egg incubation technology
* Egg turning
* Embryology
* Hatchery air conditioning
* Hatchery biosecurity measures
* Hatchery record keeping
* Hatchery waste disposal methods
* Hatching egg sorting
* Hatching egg storage
* Hatching process
* Heat transfer
* Humane killing
* In ovo vaccination technology
* Incubator environment
* Maceration and rendering techniques
* Market demand
* Methods of chick sexing
* Microbiology
* Mode of disease and parasite spread
* Occupational safety and health
* Personal hygiene and public health
* Procurement methods and procedures
* Risk analysis
* Types of cleaning agents, sanitizers and disinfectants
* Types of early chick vaccines
* Types of hatchery records
* Types of vaccination records
* Vaccine care, handling and re-constitution
* Vaccine reaction sites

**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. Implemented hatchery biosecurity measures according to standard operating procedures (SOP)   2. Handled egg according to hatching egg handling regulations   3. Set and monitored the correct incubator parameters according to the PPM and manufacturer’s guidelines   4. Identified sex of chicks using appropriate method of sexing   5. Implemented chick vaccination programme   6. Handled chicks safely in accordance with PPM guidelines   7. Disposed hatchery waste following recommended environmental protection regulations   8. Kept recommended hatchery records according to work place procedures |
| 1. Resource Implications for competence certification | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning   4. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |