

**REPUBLIC OF KENYA**

**COMPETENCY- BASED MODULAR CURRICULUM**

**FOR**

**AGRI-PRENEURSHIP TECHNOLOGY**

**KNQF LEVEL 6**

**PROGRAMME ISCED CODE:** **0811 554A**

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# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social and economic development. Quality education and training contribute to the achievement of Kenya’s development blueprint and sustainable development goals.

Reforms in the education sector are necessary to achieve Kenya Vision 2030 and meet the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution, and this resulted in the formulation of the Policy Framework for Reforming Education and Training in Kenya (Sessional Paper No. 14 of 2012). A key feature of this policy is the radical change in the design and delivery of TVET training. This policy document requires that training in TVET be competency-based, curriculum development be industry-led, certification be based on demonstration of competence, and the mode of delivery allow for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this curriculum has been developed. For trainees to build their skills on foundational hands-on activities of the occupation, units of learning are grouped in modules. This has eliminated duplication of content and streamlined exemptions based on skills acquired as a trainee progresses in the up-skilling process, while at the same time allowing trainees to be employable in the shortest time possible through the acquisition of part qualifications.

It is my conviction that this curriculum will play a great role in developing competent human resources for the Agricultural Sector’s growth and development.

**PRINCIPAL SECRETARY**

**STATE DEPARTMENT FOR TVET**

**MINISTRY OF EDUCATION**

**PREFACE**

Kenya Vision 2030 aims to transform Kenya into a newly industrializing middle-income country, providing high-quality life to all its citizens by the year 2030. Kenya intends to create globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through lifelong education and training. TVET has a responsibility to facilitate the process of inculcating knowledge, skills, and worker behaviour necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency-Based Education and Training (CBET).

TVET Act, CAP 210A and Sessional Paper No. 1 of 2019 on Reforming Education and Training in Kenya for Sustainable Development emphasized the need to reform curriculum development, assessment, and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry, as well as increase the global competitiveness of the Kenyan labour force.

This curriculum has been developed in adherence to the Kenya National Qualifications Framework and CBETA standards and guidelines. The curriculum is designed and organized into Units of Learning with Learning Outcomes, suggested delivery methods, learning resources, and methods of assessing the trainee’s achievement. In addition, the units of learning have been grouped in modules to concretize the skills acquisition process and streamline up skilling.

I am grateful to all expert trainers and everyone who played a role in translating the Occupational Standards into this competency-based modular curriculum.

# ACKNOWLEDGMENT

This curriculum has been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the curriculum, significant involvement and support were received from expert trainers, institutions and organizations.

I recognize with appreciation the role of the Agriculture National Sector Skills Committee (NSSC) in ensuring that competencies required by the industry are addressed in the curriculum. I also thank all stakeholders in the Agricultural sector for their valuable input and everyone who participated in developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that individuals aspiring to work in the Agricultural Sector acquire competencies to perform their work more efficiently and effectively.

# ABBREVIATIONS AND ACRONYMS

|  |  |
| --- | --- |
| PPEs | Personal Protective Equipment |
| ISCED | International Standard Classification of Education |
| TVET | Technical and vocational education and training |
| TVETA | Technical and Vocational Education Training Authority |

# 

**KEY TO ISCED UNIT CODE**

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# COURSE OVERVIEW

Agripreneurship Technology Level 6 curriculum consists of competencies that an individual must have to carry out Agriprenuership. It involves soil science principles, crop production principles, animal production principles, farm irrigation and drainage, farm machinery operation, geographical information system, agriculture market research, agri-enterprise business plan, agri-marketing farm budgeting, agri-enterprise work plan, agri-enterprise records.

Units of learning comprising Agriprenuership level 6 qualification include the following:

**SUMMARY OF UNITS OF LEARNING**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ISCED CODE** | **UNIT OF COMPETENCY** | **CATEGORY** | **UNIT DURATION** | **CREDIT FACTOR** |
| **MODULE I** | | | | |
| 0811 551 10A | Crop Production | CORE | 320 | 32 |
| 0811 551 13A | Agri-Enterprise farm budgeting | CORE | 110 | 11 |
| 0811 551 15A | Agri-enterprise records | CORE | 50 | 5 |
| **TOTAL HOURS** | | | **480** | **48** |
| **MODULE II** | | | | |
| 0811 551 08A | Geographical Information System. | COMMON | 120 | 12 |
| 0811 551 11A | Animal Production | CORE | 320 | 32 |
| **TOTAL HOURS** | | | **440** | **44** |
| **MODULE III** | | | | |
| 0611 541 01A | Digital literacy | BASIC | 40 | 4 |
| 0031 541 02A | Communication skills | BASIC | 40 | 4 |
| 0811 551 05A | Soil Science Principles | COMMON | 180 | 18 |
| 0811 551 06A | Farm Irrigation and Drainage | COMMON | 180 | 18 |
| **TOTAL HOURS** | | | **440** | **44** |
| **MODULE IV** | | | | |
| 0811 551 07A | Farm Machinery Operation | COMMON | 220 | 22 |
| 0811 551 14A | Agri-Enterprise Work Plan | CORE | 180 | 18 |
| **TOTAL HOURS** | | | **400** | **40** |
| **MODULE V** | | | | |
| 0417 541 03A | Work ethics and practices | BASIC | 40 | 4 |
| 0811 551 09A | Agriculture Market Research | COMMON | 180 | 18 |
| 0811 551 12A | Agri-Enterprise Business Plan | CORE | 220 | 22 |
| **TOTAL HOURS** | | | **440** | **44** |
| **Industry Training** | |  | **480** | **48** |
| **GRAND TOTAL** | | | **2680** | **268** |

**Entry Requirements**

An individual entering this course should have any of the following minimum requirements:

1. Kenya Certificate of Secondary Education (KCSE) mean grade C- (minus) OR KCE division III, KACE 1principal and subsidiary or general certificate of education (advanced level) or an equivalent qualification of KNQF 5

**Or**

1. Agri-preneurship Technology Level 5 Certificate.

**Or**

1. Equivalent qualification to Agri-preneurship Technology level 5 certificate as determined by Technical and Vocational Education and Training Authority (TVETA)

**Trainer Qualification**

A trainer for any of the units of competency in this course must:

1. have at least a higher qualification in Agriprenuership, or any other related qualification.
2. Licensed by TVETA.

**Industry Training**

An individual enrolled in this course will be required to undergo Industry training for a minimum period of 480 hours in agriculture sector. The industrial training may be taken after completion of all units for those pursuing the full qualification or be distributed equally in each unit for those pursuing part qualification. In the case of dual training model, industrial training shall be as guided by the dual training policy.

**Assessment**

The course shall be assessed formatively and summatively:

1. During formative assessment all performance criteria shall be assessed based on performance criteria weighting.
2. Number of formative assessments shall minimally be equal to the number of elements in a unit of competency.
3. During summative assessment basic and common units may be integrated in the core units or assessed as discrete units.
4. Theoretical and practical weighting for each unit of learning shall be as follows:
5. 10-90 for units in module I and II
6. 30-70 for units in module III and module IV
7. 40-60 for units in module V and module VI
8. Formative and summative assessments shall be weighted at 60% and 40% respectively in the overall unit of learning score

For a candidate to be declared competent in a unit of competency, the candidate must meet the following conditions:

1. Obtained at least 40% in theory assessment in formative and summative assessments.
2. Obtained at least 60% in practical assessment in formative and summative assessment where applicable.
3. Obtained at least 50% in the weighted results between formative assessment and summative assessment where the former constitutes 60% and the latter 40% of the overall score.
4. Assessment performance rating for each unit of competency shall be as follows:

|  |  |
| --- | --- |
| **MARKS** | **COMPETENCE RATING** |
| 80 -100 | Attained Mastery |
| 65 - 79 | Proficient |
| 50 - 64 | Competent |
| 49 and below | Not Yet Competent |
| Y | Assessment Malpractice/irregularities |

1. Assessment for Recognition of Prior Learning (RPL) may lead to award of part and/or full qualification.

**Certification**

A candidate will be issued with a Certificate of Competency upon demonstration of competence in a Unit of Competency. To be issued with Kenya National TVET Certificate in Agriprenuership Level 6, the candidate must demonstrate competence in all the Units of Competency as given in the qualification pack. Statement of Attainment certificate may be awarded upon demonstration of competence in certifiable element within a unit.

These certificates will be issued by Qualification Awarding Institution

**MODULE 1**

# CROP PRODUCTION

**UNIT CODE: 0811 551 10A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Principles of crop production

**Duration of Unit:** 320 HOURS

**UNIT DESCRIPTION**

This unit specifies the competencies required by an Agripreneurship technologist level 6 to apply crop production principles. It involves production of annual crops, production of perennial crops and production of horticulture.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Produce annual crops | 100 |
| 2. | Produce perennial crops | 110 |
| 3. | Produce horticulture crops | 110 |
| **Total** | | **320** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning outcomes** | **Content** | **Suggested assessment methods** |
| 1. Produce annual crops | * 1. Personal protective equipment   1.1.1 Types   * Overall * Headgear * Gloves * Gumboots * Goggles   + 1. Uses   1. Land preparation tools and equipment      1. Land clearing tools and equipment      2. Tillage tools and equipment   2. **Land preparation practices**      1. Land clearing      2. Primary cultivation      3. Secondary cultivation      4. Tertiary practices   3. **Planting materials**      1. Seeds      2. Vegetative materials   4. **Planting methods**   5. **Crop routine management practices**      1. Irrigation      2. Pest control      3. Disease control      4. Weeding      5. Staking      6. De-suckering      7. Fertilizer application      8. Trellising      9. Mulching      10. Gapping      11. Thinning …   6. **Crop harvesting methods**      1. Picking      2. Cutting      3. Digging      4. Uprooting … | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Produce perennial crops | * 1. **Personal protective equipment**      1. -Types * Overall * Headgear * Gloves * Gumboots * Goggles   + 1. -Uses   1. **Land preparation tools and equipment**   2. **Land preparation** practices      1. Land clearing      2. Primary cultivation      3. Secondary cultivation      4. Tertiary practices   3. **Planting materials**   7.4.1 Seeds   * + 1. Splits     2. Suckers     3. Corms     4. Slips     5. Setts     6. Cutting     7. Vegetative materials   1. **Planting methods**   2. **Crop routine** management practices      1. Pruning      2. Irrigation      3. Pest control      4. Disease control      5. Weeding      6. Propping      7. De-suckering      8. Fertilizer application      9. Trellising      10. Mulching      11. Gapping      12. Thinning   3. **Crop harvesting methods**      1. Picking      2. Cutting      3. Plucking      4. Digging | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Produce horticulture crops | * 1. **Personal protective equipment**      1. Type * Overall * Headgear * Gloves * Gumboots * Goggles   + 1. uses   1. **Land preparation tools and equipment**       1. Land clearing tools and equipment      2. Tillage tools and equipment   2. **Land preparation practices**      1. Land clearing      2. Primary cultivation      3. Secondary cultivation      4. Tertiary practices   3. **Planting materials**      1. Seeds      2. Splits      3. Suckers      4. Corms      5. Slips      6. Setts      7. Cuttings   4. **Planting methods**   5. **Crop routine management practices**      1. Pruning      2. Irrigation      3. Pest control      4. Disease control      5. Weeding      6. Staking      7. Propping      8. De-suckering      9. Fertilizer application      10. Trellising      11. Mulching      12. Gapping      13. Thinning   6. **Crop harvesting methods**      1. Picking      2. Cutting      3. Plucking      4. digging | * Project Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested method of delivery**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books | Livestock production books | 5 | 1:5 |
|  |  |  |  |  |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | classroom |  | 1 | 1:25 |
|  | greenhouse |  | 1 | 1:25 |
|  | Farm |  | 1 | 1:25 |
|  | Pesticides |  | 1 | 1;25 |
|  | fertilizer |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
|  | White board |  | 1 | 1:25 |
|  | Marker pens | Erasable | 2 | 1:13 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN or any brand | 1 | 1:25 |
|  | Computers /smartphone | Any brand-5th generation and above Core i5 | 5 | 1:5 |
|  | internet | Reliable and fast |  |  |
|  |  |  | 5 | 1:5 |

# AGRI-ENTERPRISE FARM BUDGETING

**UNIT CODE:** 0811 551 13A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Perform Agri-marketing farm budgeting.

**Duration of the unit: 110 HOURS**

**UNIT DESCRIPTION**

This unit specifies the competencies required to perform Agri-marketing farm budgeting. It involves carrying out Agri-enterprise cost estimation, carrying out revenue forecasting and managing cash-flow.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Carryout agri-enterprise cost estimation | **50** |
| 2. | Carry out revenue forecasting | **30** |
| 3. | Manage cash-flow | **30** |
| **Total** | | **110** |

**Learning Outcomes, Content and Methods of assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of assessment** |
| 1. Carry out   Agri-enterprise cost estimation | * 1. Agri-enterprise costs      1. Average costs      2. Direct costs      3. Capital costs      4. Operating costs      5. Indirect costs      6. Semi-variable costs      7. Sunk costs      8. Marginal costs      9. Fixed costs      10. Variable costs      11. Product costs      12. Total costs   2. Agri-enterprise production quantities   3. Agri-enterprise unit costs   4. Agri-enterprise total costs   5. Agri –enterprise costs review and adjustment | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Carry out revenue forecasting | * 1. Agri-enterprise budgets      1. Enterprise budgets      2. Partial budgets      3. Cash flow budgets      4. Gross margin budgets      5. Break even budgets      6. Linear programming   2. Agri-enterprise income levels      1. Sales revenue      2. Service revenue      3. Interest income      4. Dividend income      5. Rental income      6. Royalty income      7. Capital gains      8. Commission income      9. Franchise income      10. Subscription income      11. Grants and subsidies   3. Agri-enterprise reviews and adjustments | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Manage cash-flow | * 1. Agri-enterprise financial statements      1. Working capital estimates      2. Balance sheets      3. Trading, Profit and loss accounts      4. Break even analysis      5. Cash flow projections      6. Desired financing   2. Agri-enterprise profitability ratios      1. Liquidity ratios      2. Returns on investment      3. Gross profit margins      4. Net profit margins      5. Operating profit margins      6. Return on assets      7. Return on equity   3.3 Reviews and adjustments | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested Methods of delivery**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended Resources**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books &E-learning materials | Farm account book | 5 | 1:5 |
|  | Ledger book samples |  | 5 |  |
|  | Receipt book samples |  | 5 | 1:5 |
|  | Bank statements samples |  | 5 | 1:5 |
|  | Balance sheet samples | FBM Books | 5 | 1:5 |
|  | Profit and loss account samples | FBM Book | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | classroom |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN | 1 | 1:25 |
|  | Computers | Any brand-5th generation and above COi5 | 5 | 1:5 |

# DEVELOP AGRI-ENTERPRISE RECORDS

**UNIT CODE: 0811 551 15A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency**:** Develop Agri-enterprise records

**Duration of Unit: 50 HOURS**

**Unit Description**

This unit specifies the competencies required to develop Agri-enterprise records. It involves establishing Agri-enterprise record system, establishing record keeping procedures, recording Agri-enterprise data, storing Agri-enterprise records

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Establish agri-enterprise record system | 10 |
| 2. | Establish record keeping procedures | 20 |
| 3. | Record agri-enterprise data | 10 |
| 4. | Store agri-enterprise records | 10 |
| **Total** | | **50** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Establish Agri-enterprise record system | * 1. Agri-enterprise record systems establishment      1. Manual record keeping      2. Spread sheet-based system      3. Farm management soft ware      4. Cloud based systems      5. Precision system      6. Customized systems   2. Agri-enterprise record system application   3. Review and adjustments of Agri- enterprise records system | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 2. Establish records keeping procedures | * 1. Agri-enterprise record keeping procedures   2. Agri-enterprise record keeping   procedures and application   * + 1. Administrative procedures     2. Data entry and capture procedures     3. Storage and organizational procedures     4. Retention and disposal procedures     5. Security and control procedures     6. Quality assurance procedures     7. Monitoring and reviewing     8. Communication and collaboration procedures   1. Review and adjustments of record keeping procedures | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 3.Record Agri-enterprise data | * 1. Agri-enterprise data collection   -data collection forms  -GPS devices  -digital gadgets  -soil test kits  -weather monitoring equipment  -Data collection mobile application   * 1. Agri-enterprise data recording   -electronic devices  -data recording software  Spreadsheets  -data backups  Data validation tools   * 1. Review and updates of records | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 4.Store Agri- enterprise records | * 1. Agri-enterprise data storage establishment-      1. Digital      2. Manual      3. Cloud storage service      4. Farm management soft wares      5. Data backup redundancy      6. Scaling and flexibility      7. Disaster recovery planning      8. Data security measures   2. Agri-enterprise data storage   4.2.1 cloud storage  4.2.2 eternal hard drives  4.2.3 network attached storage (NAS)  4.2.4 data management software  4.3.5 training on data management practices   * 1. Review and adjustments | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested Methods of delivery**

1. Project
2. Demonstration
3. Practicals
4. Discussions
5. Direct instruction

**Recommended Resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books | Farm account books and ict books | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | Classroom /computer lab |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN | 1 | 1:25 |
|  | Internet | Fast and reliable |  |  |
|  | Computers | Any brand-5th generation and above COi5 | 5 | 1:5 |

# MODULE II

# GEOGRAPHICAL INFORMATION SYSTEM

**UNIT CODE:** 0811 551 08A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Geographical information system.

**Duration of Unit:** 120 HOURS

**Unit Description**

This unit covers the competencies required to apply information systems it involves applying GIS and remote sensing techniques, performing geo-graphic communication and, producing geo-maps.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Apply GIS and remote sensing techniques | 40 |
| 2. | Perform geo-graphic communication | 40 |
| 3. | Produce geo-maps | 40 |
| **Total** | | **120** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Apply GIS and remote sensing techniques | 1.1 Objectives and guiding principles   * 1. Management of ecosystems and sustainable natural resource   2. Environmental stewardship   3. Environmental quality and health   4. Environmental governance laws | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Perform geo-graphic communication | * 1. Developing digital maps as per Open Geospatial Consortium   2. Presenting digital maps as per Open Geospatial Consortium   3. Generating graphs as per Open Geospatial Consortium   4. Image geo-referencing and processing as per Open Geospatial Consortium   5. Generation of digital models as per Open Geospatial Consortium | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning instruction |
| 1. Produce geo-maps | * 1. Generation of maps per Federal Geographic Data Committee   2. Compilation and design of maps as per Federal Geographic Data Committee   3. Projection of coordinate reference maps systems as per Federal Geographic Data Committee | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested methods of delivery**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended Resource for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books and  E-Learning materials | Survey and statistic books | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | classroom |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN | 1 | 1:25 |
|  | Computers | Any brand-5th generation and above COi5 | 5 | 1:5 |
|  | internet | Reliable and fast |  |  |
|  | GPS device |  | 5 | 1:5 |

# 

# ANIMAL PRODUCTION

**UNIT CODE: 0811 551 11A**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: **Apply principles of animal production**

**Duration of Unit:** 320 hours

**Unit Description**

This unit specifies the competencies required by Agripreneurship technologist to apply principles of ruminant production, non-ruminant production, emerging livestock bee keeping and fish farming

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Produce ruminant animals | 80 |
| 2. | Produce non- ruminant animals | 80 |
| 3. | Produce emerging- livestock | 60 |
| 4. | Conduct fish farming | 50 |
| 5. | Conduct bee keeping | 50 |
| **Total** | | **320** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Produce ruminant animals | * 1. Introduction to ruminant animals      1. Cattle      2. Goats      3. Camel      4. Sheep      5. Donkey   2. Ruminant animal breeding stock selection methods      1. Tandem method      2. Progeny testing      3. Random selection      4. Contemporary comparison   3. Breeding methods and systems      1. Natural mating      2. Artificial insemination      3. Embryo transplant   4. Animals feeding practices      1. Steaming up      2. Creep feeding      3. Flushing   5. Animals’ routine management practices      1. Closed castration      2. Docking      3. Hoof trimming      4. Shearing      5. Disbudding      6. Identification      7. Cleaning animal houses      8. Vaccination   6. Classification and identification of Animal parasites      1. External parasites – keds, tsetse fly, fleas, lice, tick      2. Internal parasites- roundworm, tapeworm, liver fluke, hookworm   7. Identify disease and parasite Control methods      1. Quarantine      2. Vaccination      3. Isolation      4. Proper breeding and selection      5. Proper feeding and nutrition      6. Proper hygiene      7. Use of prophylactic drugs      8. Use of antiseptics | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Produce non- ruminant animals | * 1. Introduction to non-ruminant animals      1. Poultry      2. Rabbit      3. Pigs   2. Non -Ruminant animal breeding stock selection   3. Breeding methods   -traditional breeding  - inbreeding  - crossbreeding  - controlled breeding  - biotechnology &assisted reproductive technique  - genetic selection and genomics  -conservation breeding   * 1. Animals feeding   2. Animals’ routine management practices   3. Animal parasites control methods * Physical * Biological * chemical   1. Animal disease control methods * Biological/cultural * Physical * chemical | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Produce emerging- livestock | * 1. Introduction to emerging- livestock      1. Crocodiles      2. Ostrich      3. Snakes      4. Maggots      5. Earthworms   2. Importance of emerging livestock   3. Breeding methods   4. Animal feeding practices   5. Animal routine management practices   6. Animal parasite control methods   7. Animal disease control method | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Conduct fish farming | * 1. Fish speciesidentification      1. Marine fish      2. Fresh water fish   2. Fish farm site selection      1. Security      2. Species of fish to be reared      3. Type of soil      4. Availability of water      5. Market availability      6. Source of reputable fingerlings      7. Management skills   3. Construction of fish pond   *-*fish pond construction procedures   * 1. Fish and fish Pond maintenance and management practice      1. Aeration      2. Water flow rate control      3. Water quality monitoring      4. Predator control      5. Sludge removal      6. Declogging of drainage system      7. Cleaning of filters      8. Fingerling/fry grading      9. Marketing of hatchery products      10. Fish health monitoring      11. Fish propagation      12. Fish stocking      13. Fingerling packaging and transport      14. De-siltation      15. Fertilization      16. Harvesting   2. Control of fish pond waste and predators   4.6 Causes of fish disease   * + 1. Environmental/water quality causes     2. Hereditary/genetic causes     3. Microbial/pathogenic causes     4. Nutritional causes     5. Physical injury   1. Fish pond stocking | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning instruction |
| 1. Conduct bee keeping | * 1. Apiary site identification   2. Types and Construction of bee hives      1. Langstroth      2. Kenya top bar hive      3. Box hive   3. Bee hives installation   4. Bee hive stocking procedure   5. Bee products harvesting      1. Honey      2. Propolis      3. Bee venom      4. Creamed honey      5. Manuka honey      6. Comb honey      7. Honeycomb      8. Beeswax      9. Bee pollen      10. Royal jelly | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested methods of delivery for 25 trainees**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended Resource for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books | Livestock production books | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | classroom |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN or any brand | 1 | 1:25 |
|  | Computers | Any brand-5th generation and above Core i5 | 5 | 1:5 |
|  | internet | Reliable and fast |  |  |
|  | GPS device |  | 5 | 1:5 |
| **E** | **Biological assets** |  |  |  |
|  | Non ruminant livestock | rabbit | 2 | 1:5 |
|  | Ruminant animals | cow | 2 | 1:5 |
|  | Emerging livestock | ostrich | 1 | 1:25 |
|  | Bees | Honey bee | 1 | 1:25 |
|  | Fish pond | Tilapia fish | 10 | 1:3 |

# MODULE III

# DIGITAL LITERACY

**UNIT CODE:** 0611 551 01A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Digital Literacy

**Duration of Unit:** 40 Hours

**Unit Description**

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

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

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

**Learning Outcomes, Content, and Suggested Assessment Methods**

| **Learning Outcome** | **Content** | **Suggested**  **Assessment Methods** |
| --- | --- | --- |
| 1. Operate computer devices | * 1. Meaning and importance of digital literacy   2. Functions and Uses of Computers   3. Classification of computers   4. Components of a computer system   5. Computer Hardware      1. The System Unit E.g. Motherboard, CPU, casing      2. Input Devices e.g. Pointing, keying, scanning, voice/speech recognition, direct data capture devices.      3. Output Devices e.g. hardcopy output and softcopy output      4. Storage Devices e.g. main memory e.g. RAM, secondary storage (Solid state devices, Hard Drives, CDs & DVDs, Memory cards, Flash drives      5. Computer Ports e.g. HDMI, DVI, VGA, USB type C etc.   6. Classification of computer software   7. Operating system functions   8. Procedure for turning/off a computer   9. Mouse use techniques   10. Keyboard Parts and Use Technique   11. Desktop Customization   12. File and Files Management using an operating system   13. Computer Internet Connection Options       1. Mobile Networks/Data Plans       2. Wireless Hotspots       3. Cabled (Ethernet/Fiber)       4. Dial-Up       5. Satellite   14. Computer external devices management       1. Device connections       2. Device controls (volume controls and display properties) | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Solve tasks using Office suite | * 1. Meaning and Importance of Word Processing   2. Examples of Word Processors   3. Working with word document      1. Open and close word processor      2. Create a new document      3. Save a document      4. Switch between open documents   4. Enhancing productivity      1. Set basic options/preferences      2. Help resources      3. Use magnification/zoom tools      4. Display, hide built-in tool bar      5. Using navigation tools   5. Typing Text   6. Document editing (copy, cut, paste commands, spelling and Grammar check)   7. Document formatting      1. Formatting text      2. Formatting paragraph      3. Formatting styles      4. Alignment      5. Creating tables      6. Formatting tables   8. Graphical objects      1. Insert object (picture, drawn object)      2. Select an object      3. Edit an object      4. Format an object   9. Document Print setup      1. Page layout,      2. Margins set up      3. Orientation.   10. Word Document Printing   11. Meaning & Importance of electronic spreadsheets   12. Components of Spreadsheets   13. Application areas of spreadsheets   14. Using spreadsheet application       1. Parts of Excel screen: ribbon, formula bar, active cell, name box, column letter, row number, Quick Access Toolbar.       2. Cell Data Types       3. Block operations       4. Arithmetic operators (formula bar (-, +, \*, /).       5. Cell Referencing   15. Data Manipulation       1. Using Functions (Sum, Average, SumIF, Count, Max, Max, IF, Rank, Product, mode etc)       2. Using Formulae       3. Sorting data       4. Filtering data       5. Visual representation using charts   16. Worksheet printing   17. Electronic Presentations   18. Meaning and Importance of electronic presentations   19. Examples of Presentation Software   20. Using the electronic presentation application       1. Parts of the PowerPoint screen (slide navigation pane, slide pane, notes, the ribbon, quick access toolbar, and scroll bars).       2. Open and close presentations       3. Creating Slides (Insert new slides, duplicate, or reuse slides.)       4. Text Management (insert, delete, copy, cut and paste, drag and drop, format, and use spell check).       5. Use magnification/zoom tools       6. Apply or change a theme.       7. Save a presentation       8. Switch between open presentations   21. Developing a presentation       1. Presentation views          1. Slides          2. Master slide       2. Text       3. Editing text       4. Formatting       5. Tables   22. Chart       1. Using charts       2. Organization charts   23. Graphical objects       1. Insert       2. manipulate       3. Drawings   24. Prepare outputs       1. Applying slide effects and transitions       2. Check and deliver       3. Spell check a presentation       4. Slide orientation       5. Slide shows, navigation   25. Print presentations (slides and handouts) | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Manage Data and Information | * 1. Meaning of Data and information   2. Importance and Uses of data and information   3. Types of internet services      1. Communication Services      2. Information Retrieval Services      3. File Transfer      4. World Wide Web Services      5. Web Services      6. Automatic Network Address Configuration      7. Newsgroup      8. Ecommerce   4. Types of Internet Access Applications   5. Web browsing concepts      1. Key concept      2. Security and safety   6. Web browsing      1. Using the web browser      2. Tools and setting      3. Clearing Cache and cookies      4. URIs      5. Bookmarks      6. Web outputs   7. Web based information      1. Search      2. Critical evaluation of information      3. Copyright, data protection   8. Downloads Management   9. Performing Digital Data Backup (Online and Offline)   10. Emerging issues in internet | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Perform online communication and collaboration | * 1. Netiquette principles   2. Communication concepts      1. Online communities      2. Communication tools      3. Email concepts   3. Using email      1. Sending email      2. Receiving email      3. Tools and settings      4. Organizing email   4. Digital content copyright and licenses   4.5 Online collaboration tools  4.5.1 Online Storage (Google Drive)   * + 1. Online productivity applications (Google Docs & Forms)     2. Online meetings (Google Meet/Zoom)     3. Online learning environments     4. Online calendars (Google Calendars)     5. Social networks (Facebook/Twitter - Settings & Privacy)   1. Preparation for online collaboration      1. Common setup features      2. Setup   2. Mobile collaboration      1. Key concepts      2. Using mobile devices      3. Applications      4. Synchronization | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Apply cybersecurity skills | * 1. Data protection and privacy      1. Confidentiality of data/information      2. Integrity of data/information      3. Availability of data/information   2. Internet security threats      1. Malware attacks      2. Social engineering attacks      3. Distributed denial of service (DDoS)      4. Man-in-the-middle attack (MitM)      5. Password attacks      6. IoT Attacks      7. [Phishing Attacks](https://onlinedegrees.sandiego.edu/top-cyber-security-threats/#phishing-attacks)      8. [Ransomware](https://onlinedegrees.sandiego.edu/top-cyber-security-threats/#ransomware)   3. Computer threats and crimes   4. Cybersecurity control measures      1. Physical Controls      2. Technical/Logical Controls (Passwords, PINs, Biometrics)      3. Operational Controls   5. Laws governing protection of ICT in Kenya      1. The Computer Misuse and Cybercrimes Act No. 5 of 2018      2. The Data Protection Act No. 24 Of 2019 | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Perform Online Jobs | * 1. Introduction to online working   2. Types of online Jobs   3. Online job platforms      1. Remotask      2. Data annotation tech      3. Cloud worker      4. Upwork      5. Oneforma      6. Appen   4. Online account and profile management   5. Identifying online jobs/job bidding   6. Online digital identity   7. Executing online tasks   8. Management of online payment accounts. | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Apply job entry techniques | * 1. Types of job opportunities      1. Self-employment      2. Service provision      3. product development      4. salaried employment   2. Sources of job opportunities   3. Resume/ curriculum vitae      1. What is a CV      2. How long should a CV be      3. What to include in a AC      4. Format of CV      5. How to write a good CV      6. Don’ts of writing a CV   4. Job application letter      1. What to include      2. Addressing a cover letter      3. Signing off a cover letter   5. Portfolio of Evidence      1. Academic credentials      2. Letters of commendations      3. Certification of participations      4. Awards and decorations   6. Interview skills      1. Listening skills      2. Grooming      3. Language command      4. Articulation of issues      5. Body language      6. Time management      7. Honesty   7. Generally knowledgeable in current affairs and technical area | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested Methods Instruction**

* Practical
* Demonstrations
* Project
* Group discussion
* Direct instruction

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** |  |  |  |
|  | Textbooks |  | 5 pcs | 1:5 |
|  | Production Manuals |  | 5 | 1;5 |
|  | PowerPoint presentations | For trainer’s use |  |  |
|  | Projector |  | 1 | 1;25 |
|  | Assorted Flash Cards |  | 5 | 1;5 |
|  | Whiteboard |  | 1 | 1;25 |
|  | Rolls flip charts |  | 1 | 1;25 |
|  | Assorted color of whiteboard markers | For trainers Use |  |  |
| **B** | **Learning Facilities & infrastructure** |  |  |  |
|  | Lecture/theory room |  | 1 | 1:25 |
|  | Computer Laboratory |  | 1 | 1:25 |
| **C** | **Consumable materials** |  |  |  |
|  | Assorted whiteboard markers |  | 25 | 1:1 |
|  | Internet connection |  | 200 mbps | - |
|  | Antivirus Software |  |  | - |
|  | Printing Papers |  | Enough | - |
|  | External storage media |  | 1 tb | - |
| **D** | **Tools and Equipment** |  |  |  |
|  | Printers |  | 2 pcs | 2:25 |
|  | Computers | With Windows /Linux/Macintosh Operating System, Microsoft Office Software, Google Workspace Account, Antivirus Software | 25pcs | 1:1 |

# COMMUNICATION SKILLS

**UNIT CODE:** 0031 541 02A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Communication Skills

**Duration of Unit:** 40 hours

**Unit Description**

This unit covers the competencies required to apply communication skills. It involves applying communication channels, written, non-verbal, oral, and group communication skills.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Apply communication channels | 10 |
| 2. | Apply written communication skills | 12 |
| 3. | Apply non-verbal communication skills | 4 |
| 4. | Apply oral communication skills | 4 |
| 5. | Apply group communication skills | 10 |
| **Total** | | **40** |

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**Learning Outcomes, Content, and Suggested Assessment Methods**

| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| --- | --- | --- |
| 1. Apply communication channels | 1. Communication process 2. Principles of effective communication 3. Channels/medium/modes of communication 4. Factors to consider when selecting a channel of communication 5. Barriers to effective communication 6. Flow/patterns of communication 7. Sources of information 8. Organizational policies | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Apply written communication skills | 1. Types of written communication 2. Elements of communication 3. Organization requirements for written communication | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Apply non-verbal communication skills | * 1. Utilize body language and   2. Gestures   3. Apply body posture   4. Apply workplace dressing code | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Apply oral communication skills | * 1. Types of oral communication pathways   2. Effective questioning techniques   3. Workplace etiquette   4. Active listening | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Apply group discussion skills | 5.1Establishing rapport  5.2Facilitating resolution of issues  5.3Developing action plans  5.4Group organization techniques   * Turn-taking techniques * Conflict resolution techniques * Team-work | * Practical * Portfolio of Evidence * Oral assessment * Written assessment * Observation |

**Suggested Methods of Instruction**

* Practical
* Demonstrations
* Project
* Group discussion
* Direct instruction

**Recommended Resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** |  |  |  |
|  | Textbooks |  | 5 pcs | 1:5 |
|  | Production Manuals |  | 5 | 1;5 |
|  | PowerPoint presentations | For trainer’s use |  |  |
|  | Projector |  | 1 | 1;25 |
|  | Assorted Flash Cards |  | 5 | 1;5 |
|  | Whiteboard |  | 1 | 1;25 |
|  | Report writing templates |  |  |  |
|  | Rolls flip charts |  | 1 | 1;25 |
|  | Assorted color of whiteboard markers | For trainers Use |  |  |
| **B** | **Learning Facilities & infrastructure** |  |  |  |
|  | Lecture/theory room |  | 1 | 1:25 |
|  | Computer Laboratory |  | 1 | 1:25 |
| **C** | **Consumable materials** |  |  |  |
|  | Assorted whiteboard markers |  | 25 | 1:1 |
|  | Internet connection |  | 200 mbps | - |
|  | Antivirus Software |  |  | - |
|  | Printing Papers |  | Enough | - |
|  | External storage media |  | 1 tb | - |
| **D** | **Tools and Equipment** |  |  |  |
|  | Printers |  | 2 pcs | 2:25 |
|  | Computers | With Windows /Linux/Macintosh Operating System, Microsoft Office Software, Google Workspace Account, Antivirus Software | 25pcs | 1:1 |
|  | Mobile phones |  | 10 | 10:25 |

# SOIL SCIENCE PRINCIPLES

**UNIT CODE: 0811 551 05A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Apply soil science principles

**Duration of Unit: 180 HOURS**

**UNIT DESCRIPTION**

This unit specifies the competencies required to apply soil science principles. It includes competencies for performing soil sampling and analysis, and improving soil fertility.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Perform soil sampling | **60** |
| 2. | Perform soil analysis | **60** |
| 3. | Improve soil fertility | **60** |
| **Total** | | **180** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| * 1. soil sampling | * 1. Personal protective equipment      1. Gloves      2. Safety goggles      3. Safety boots      4. Overalls      5. Dust coat      6. Ear muffs      7. Face masks   2. Soil sampling      1. zigzag      2. traverse   3. Soil sampling tools      1. Soil probe      2. Soil auger      3. Sampler tube      4. Trowel   4. Soil sampling procedures * Field layout * Sample collection * Compositing * Packaging * Processing * Storage   1. Soil testing   2. Soil testing equipment   1.6.1 Ph meter  1.6.2 soil moisture meter  1.6.3 Texture analysis tools…. | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| * 1. Perform soil analysis | * 1. **Personal protective equipment** * Gloves * Safety goggles * Safety boots * Overalls * Dust coat * Ear muffs * Face masks   2.1.2Uses   * 1. **Soil analysis**      1. Definition      2. Tools equipment &materials   2. **Soil analysis process**   3. **Soil properties**      1. **soil physical properties**   2.4.1.1 soil bulk density  2.4.1.2 Water holding capacity  2.4.1.3 Soil texture  2.4.1.4 Soil aggregation and soil colloids  2.4.1.5 Soil consistence  2.4.1.6 Soil colour  2.4.1.7 Soil moisture  2.4.1.8 Soil air  **2.4.2 Soil Chemical properties**  2.4.2.1 Soil PH  2.4.2.2 Soil EC  2.4.2.3 Cation exchange capacity  2.4.2.4 Percent base saturation  2.4.2.5 Salt index  2.4.2.6 CN ratio  2.4.2.7 Nutrients concentration  **2.4.3 biological properties**  2.4.3.1 microbial activity  2.4.3.2 C:N ratio   * 1. **soil analysis report** | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Improve soil fertility | * 1. **Personal protective equipment** * 3.1.1 Types * Gloves * Safety goggles * Safety boots * Overalls * Dust coat * Ear muffs * Face masks   + 1. Uses   **3.2 Soil fertility**  3.2.1 Definition   * + 1. Characteristics of a fertile soil     2. Micro and Macro nutrients   3.2.4 Ways in which soil losses fertility  **3.3 Fertilizers**  3.3.1 Organic   * + 1. Inorganic     2. Fertilizer application methods   **3.4 Soil amendments**  3.4.1 Fertilizers   * + 1. Agricultural lime     2. Gypsum…   **3.5 Soil conservation measures**   * + 1. cultural/biological   3.5.2 mechanical/physical/structural | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested methods of delivery**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books | Agricultural engineering | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | Soil science laboratory | Well-equipped lab-   * Sieve shakers * Soil grinders * Drying ovens * Mortars and pestles * pH meters and electrodes * Conductivity meters * Spectrophotometers * Test tubes and beakers * Pipettes and volumetric flasks * Soil moisture sensors * Data loggers | 1 | 1:25 |
|  | classroom |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
|  | Masking tape |  | 5 | 1:5 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN or any brand | 1 | 1:25 |
|  | Computers | Any brand-5th generation and above COi5 | 5 | 1:5 |
|  | internet | Reliable and fast |  |  |
|  | Ranging rods/pegs | Wooden 1ft | 10 | 1:3 |
|  | Measuring tape | 100m long | 5 | 1:5 |
|  | Shovels |  | 5 | 1:5 |
|  | Jembes | Wooden handle and sharp | 5 | 1:5 |
|  | Mattock | Wooden handle and sharp | 5 | 1:5 |
|  | Pangas | Sharp with good handle | 1 | 1:5 |
|  | Water taps |  | 5 | 1:5 |
|  | Gutters | pvc | 5 | 1:5 |
|  | Rope/strings | 100 m long manilla rope | 2 | 1:10 |
|  | Soil sample packaging bags | Brown 2kg bags | 10 | 1:3 |
|  | Soil auger |  | 10 | 1:3 |

# 

# FARM IRRIGATION AND DRAINAGE SYSTEMS

**UNIT CODE: 0811 551 06A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: carry out farm irrigation and drainage

**Duration of Unit: 180 HOURS**

**UNIT DESCRIPTION**

This unit specifies the competencies required by an Agripreneurship technologist level 6 to carry out farm irrigation and drainage. It involves designing farm irrigation and drainage systems, installing farm irrigation and drainage systems and maintaining farm irrigation and drainage systems.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Design farm irrigation and drainage systems | 60 |
| 2. | Install farm irrigation and drainage systems | 60 |
| 3. | Maintain farm irrigation and drainage systems | 60 |
| **Total** | | **180** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Design farm irrigation and drainage systems | * 1. Farm irrigation and drainage system work drawing      1. Surface      2. Sub surface      3. Sprinkler      4. Trickle      5. Centre pivot   2. Farm irrigation and drainage system design approvals   3. system material costing   -Material costing components  -Material estimation process   * 1. preparing Farm irrigation and drainage system material schedule | * + Practical   + Project   + Third party report   + Portfolio of evidence   + Written tests   + Oral questioning |
| 1. Install farm irrigation and drainage systems | * 1. Personal protective equipment * Types * Uses   1. Farm irrigation and drainage system tools,   equipment and uses   * + 1. Drip kit     2. Pipes     3. Fittings     4. Water meter     5. Flow meters     6. Pumps   1. Installation of farm irrigation and drainage system * irrigation and drainage system   installation procedure   * irrigation and drainage system testing   2.4 Testing of farm irrigation and drainage system | * + Practical   + Project   + Third party report   + Portfolio of evidence   + Written tests   + Oral questioning |
| 1. Maintain farm irrigation and   drainage systems | * 1. personal protective equipment * Types * Use   1. Farm irrigation and drainage system   maintenance schedule   * Daily * Weekly * Monthly * Annually * seasonally   1. Assembling of Farm irrigation and drainage system tools and equipment * Drip kit * Pipes * Fittings * Water meter * Flow meter * Pump   1. Farm irrigation and drainage system maintenance * -irrigation system maintenance practices * -drainage system maintenance practices | * + Practical   + Project   + Third party report   + Portfolio of evidence   + Written tests   + Oral questioning |

**Suggested methods of delivery**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books &  E- learning materials | Agricultural engineering | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | classroom |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN or any brand | 1 | 1:25 |
|  | Computers | Any brand-5th generation and above COi5 | 5 | 1:5 |
|  | internet | Reliable and fast |  |  |
|  | Ranging rods/pegs | Wooden 1ft | 10 | 1:2 |
|  | Measuring tape | 100m long | 5 | 1:5 |
|  | Shovels |  | 5 | 1:5 |
|  | Jembes | Wooden handle and sharp | 5 | 1:5 |
|  | Mattock | Wooden handle and sharp | 5 | 1:5 |
|  | Pangas | Sharp with good handle | 1 | 1:5 |
|  | Water taps |  | 5 | 1:5 |
|  | Gutters | pvc | 5 | 1:5 |
|  | Rope/strings | 100 m long manilla rope | 2 | 1:10 |
|  | Pipes | Pvc pipes 100m | 1 |  |
|  | Emitters |  |  |  |
|  | Pump |  | 2 |  |
|  | Tanks | 100l tank | 1 | 1:25 |
|  | Nozzles |  | 5 | 1:5 |
|  | Valves |  | 5 | 1:5 |

# 

# MODULE IV

# FARM MACHINERY OPERATION

**UNIT CODE:** 0811 551 07A

**Relationship to occupational standards**

This unit addresses the unit of competency: Operate farm machinery

**Duration of Unit:** 220 HOURS

**UNIT DESCRIPTION**

The unit specify the competences required to operate farm machinery. It includes, operating hand tool and equipment, tillage machinery, planting machinery, crop protection machinery, harvesting machinery and Agro-processing machinery.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Operate hand tools and equipment | 40 |
| 2. | Operate tillage machinery | 40 |
| 3. | Operate planting machinery | 40 |
| 4. | Operate crop protection machinery | 40 |
| 5. | Operate harvesting machinery | 30 |
| 6. | Operate agro-processing machinery | 30 |
| **Total** | | **220** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning outcome** | **content** | **Suggested assessment method** |
| 1. Operate hand tools and equipment | * 1. Hand tools and equipment      1. Garden Tools and equipment      2. Livestock handling tools and equipment      3. Cultivation tools and equipment      4. Harvesting tools and equipment      5. Crop protection tools and equipment   2. Utilizing of hand tools and equipment   3. Servicing of hand tools and equipment   4. Storage of the hand tools and equipment   **Practices**  -Tool identification  -Maintenance of hand tools... | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Operate tillage machinery | 2.1 Personal protective equipment   * + 1. Eye protection equipment     2. Hearing protection equipment     3. Feet protection equipment     4. Respiratory protection equipment     5. Gloves     6. Full body suits   1. Tillage machinery      1. Ploughs      2. Harrows      3. Tillers      4. Rotavators      5. Subsoilers   2. Maintenance of tillage machinery   3. Storage of tillage machinery | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 3.Operate planting machinery | 3.1 Personal protective equipment   * Types * Uses   1. Calibration of planting      1. machinery      2. Seed drills      3. Planters      4. Ridgers      5. Fertilizer distributors      6. Manure spreaders   2. Operation of planting machinery   3. Maintenance of planting machinery   4. Storage of planting machinery | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 4.Operate crop protection machinery | * 1. Personal protective equipment is worn   2. Calibration of crop protection machinery      1. Sprayers      2. Dusters   3. Operation of crop protection machinery   4. Maintenance of crop protection machinery   5. Storage of crop protection machinery | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 5.Operate harvesting machinery | 5.1 Personal protective equipment is worn  5.2 Operation of harvesting machinery  5.3 Maintenance of harvesting machinery  5.4 Storage of harvesting machinery | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 6.Operate Agro-processing machinery | * 1. Personal protective equipment is worn   2. Operation of Agro-processing machinery   6.2.1 Mills  6.2.2 Grinders  6.2.3 Shellers  6.2.4 Dryers  6.2.5 Elevators conveyers   * 1. Maintenance of Agro-processing machinery   2. Storage of Agro-processing machinery | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested methods**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books and E-Learning materials | Agricultural engineering book-Farm machinery | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | Classroom/computer lab | Desktops, internet and printers | 1 | 1:25 |
|  | workshop |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | Printing papers | A4 SIZE | 5 reams | 1:5 |
|  | Assorted whiteboard markers | Erasable | 1 | 1:25 |
|  | Note books | A4 | 25 | 1:1 |
|  | Flip charts |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | Tractor |  | 1 | 1:25 |
|  | Googles |  | 25 | 1:1 |
|  | Earmuffs |  | 25 | 1:1 |
|  | Gumboots |  | 25 | 1:1 |
|  | Face Mask |  | 25 | 1:1 |
|  | Gloves 25 pairs |  | 25 | 1:1 |
|  | Apron |  | 25 | 1:1 |
|  | Panga |  | 5 | 1:5 |
|  | Jembes |  | 5 | 1:5 |
|  | Ploughs | Disc plough | 1 | 1:25 |
|  | Harrows | Disc harrow | 1 | 1:25 |
|  | Tillers |  | 1 | 1:25 |
|  | Rotavators |  | 1 | 1:12 |
|  | Subsoilers |  | 1 | 1:12 |
|  | Seed drills |  | 1 | 1:12 |
|  | Planters | Seed planter | 1 | 1:12 |
|  | Ridgers |  | 1 | 1:12 |
|  | Fertilizer distributors |  | 2 | 1:12 |
|  | Manure spreaders |  | 2 | 1:12 |
|  | Sprayers |  | 2 | 1:12 |

# AGRI-ENTERPRISE WORK PLAN IMPLEMENTATION

**UNIT CODE:** **0811 551 14A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Implement Agri-Enterprise Work Plan

**Duration of Unit:** 180 HOURS

**UNIT DESCRIPTION**

This unit specifies the competencies required to implement Agri-enterprise work plan. It involves Executing Agri-enterprise work plan, Market Agri-enterprise produce, Monitor and evaluate Agri-enterprise work plan.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to execute agri-enterprise work plan | **30** |
| 2. | Establish agri-enterprise goals | **30** |
| 3. | Carry out agri-enterprise activities | **30** |
| 4. | Mitigate agri-enterprise risks & uncertainties | **30** |
| 5. | Market agri-enterprise produce | **30** |
| 6. | Monitor and evaluate agri-enterprise work plan | **30** |
| **Total** | | **180** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1.Prepare to execute Agri-enterprise work plan | * 1. Agri-enterprise plan   Communication methods   * + 1. Letters     2. mails     3. audio-verbal     4. reports     5. minutes   1. Agri-enterprise tasks and responsibilities      1. Research      2. Production      3. Management      4. Marketing      5. Documentation and reporting      6. Monitoring and reviews   2. Agri -enterprise implementation resources      1. Human capital      2. Physical infrastructure      3. Production Inputs      4. Financial resources      5. Support systems | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Establish Agri-enterprise goals | * 1. Agri-enterprise goals      1. Short term goals      2. Medium term goals      3. Long term goals   2. Agri-enterprise goals assigning   2.3 Agri-enterprise goals reviewing | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Carry out Agri-enterprise   activities | * 1. Agri- enterprise activities time frames assigning   2. Agri-enterprise physical resources allocation      1. Human capital      2. Physical infrastructure      3. Production Inputs      4. Financial resources      5. Support systems   3. Agri -enterprise physical resources application. | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Mitigate Agri-enterprise risks & uncertainties | * 1. Agri-enterprise risks and uncertainties identification      1. Market risks      2. Production risks      3. Financial risks      4. Policy and regulation risks      5. Technology risks      6. Environmental risks      7. Human capital risk      8. Health and safety risk   4.2 Agri-enterprise risk management strategies  4.3Agri-enterprise risk management strategy monitoring | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Market Agri-enterprise   produce | 5.1Agri-enterprise produce assembling  5.2Agri-enterprise produce storage  5.3Types of storage structures  5.4 Agri-enterprise produce sorting   * Factors to consider during sorting   - Agri-enterprise produce grading  5.5Grading parameters   * 1. Agri-enterprise value addition   2. Agri-enterprise produce packaging   5.7 Packaging materials   * 1. Agri-enterprise produce distribution   5.9 Methods of distribution  5.9.1 Direct distribution  5.9.2 Wholesale distribution  5.9.3 Retail distribution  5.9.4Online distribution  5.9.5 Agents’ distribution  5.9.6 Partnership distribution  5.9.7Direct mail distribution  5.10Agri-enterprise produce promotion and advertisement | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 6.Monitor and evaluate Agri-enterprise work plan | 6.1 Agri-enterprise performance indicators   * + - Revenue growth     - Profitability ratios     - Crop yields     - Quality standards     - Cost of production     - Sustainability metrics     - Compliance regulations     - Customer satisfaction     - Supply chain efficiency     - Market share     - Innovation and technology adoption   6.2 Agri-enterprise actual and planned performance comparison  6.3 Review and adjustments | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested methods of delivery**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Letters samples |  | 5 | 1:5 |
|  | Mails samples |  | 5 | 1:5 |
|  | Minutes samples |  | 5 | 1:5 |
|  | Reports samples |  | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | Classroom/computer lab |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | Printing papers | A4 SIZE | 5 reams | 1:5 |
|  | Assorted whiteboard markers | Erasable | 1 | 1:25 |
|  | Note books | A4 | 25 | 1:1 |
|  | Flip charts |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | computers | Hp 830 G6 COREi5 | 5 | 1:5 |
|  | Printers | Epson laser jet | 2 | 1:12 |
|  | External storage media | SanDisk 64 GB | 2 | 1:12 |
|  | Projector | Epson 5687 lumen | 1 | 1:25 |
|  | Whiteboard |  | 1 | 1:25 |
|  | Smartboard/Smart TV (Where applicable) |  | 1 | 1:25 |
|  | Internet connection | Reliable internet |  |  |
|  |  |  |  |  |

# MODULE V

# WORK ETHICS AND PRACTICES

**UNIT CODE:** 0417 541 03A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply 4and practices.

**Duration of Unit:** 40 hours

**Unit Description**

This unit covers competencies required to demonstrate employability skills. It involves the ability to: conduct self-management, promote ethical work practices and values, promote teamwork, manage workplace conflicts, maintain professional and personal development, apply problem-solving, and promote customer care.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Apply self-management skills | 10 |
| 2. | Promote ethical work practices and values | 4 |
| 3. | Promote Team work | 10 |
| 4. | Maintain professional and personal development | 10 |
| 5. | Apply Problem solving skills | 4 |
| 6. | Promote Customer Care | 2 |
| **Total** | | **40** |

**Learning Outcomes, Content, and Suggested Assessment Methods**

| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| --- | --- | --- |
| 1. Apply Self-Management Skills | 1. Self-awareness 2. Formulating personal vision, mission, and goals 3. Healthy lifestyle practices 4. Strategies for overcoming work challenges 5. Emotional intelligence 6. Coping with Work Stress. 7. Assertiveness versus aggressiveness and passiveness 8. Developing and maintaining high self-esteem 9. Developing and maintaining positive self-image 10. Time management 11. Setting performance targets 12. Monitoring and evaluating performance targets | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Promote Ethical Work Practices And Values | 1. Integrity 2. Core Values, ethics and beliefs 3. Patriotism 4. Professionalism 5. Organizational codes of conduct 6. Industry policies and procedures | * Written assessment * Oral assessment * Third party reports * Portfolio of evidence * Project * Practical |
| 1. Promote Teamwork | 1. Types of teams 2. Team building 3. Individual responsibilities in a team 4. Determination of team roles and objectives 5. Team parameters and relationships 6. Benefits of teamwork 7. Qualities of a team player 8. Leading a team 9. Team performance and evaluation 10. Conflicts and conflict resolution 11. Gender and diversity mainstreaming 12. Developing Healthy workplace relationships 13. Adaptability and flexibility 14. Coaching and mentoring skills | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Maintain Professional and Personal Development | 1. Personal vs professional development and growth 2. Avenues for professional growth 3. Recognizing career advancement 4. Training and career opportunities 5. Assessing training needs 6. Mobilizing training resources 7. Licenses and certifications for professional growth and development 8. Pursuing personal and organizational goals 9. Managing work priorities and commitments 10. Dynamism and on-the-job learning | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Apply Problem-Solving Skills | 1. Causes of problems 2. Methods of solving problems 3. Problem-solving process 4. Decision making 5. Creative thinking and critical thinking process in development of innovative and practical solutions | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Promote Customer Care | 1. Identifying customer needs 2. Qualities of good customer service 3. Customer feedback methods 4. Resolving customer concerns 5. Customer outreach programs 6. Customer retention | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested Methods of Instruction**

* Practical
* Demonstrations
* Project
* Group discussion
* Direct instruction

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** |  |  |  |
|  | Textbooks |  | 5 pcs | 1:5 |
|  | PowerPoint presentations | For trainer’s use |  |  |
|  | Overhead Projector | LCD | 1 | 1;25 |
|  | Case studies |  | 5 | 1;5 |
|  | Business plan templates |  | 5 | 1:5 |
|  | Newspapers and Handouts |  | 5 | 1:5 |
|  | Business Journals |  | 5 | 1:5 |
|  | Video clips | Assorted | 15 sets | 3:5 |
|  | Audio tapes | Assorted | 15 sets | 3:5 |
|  | Whiteboard |  | 1 | 1;25 |
|  | Rolls flip charts |  | 1 | 1;25 |
|  | Assorted color of whiteboard markers | For trainers Use | 1 | 1:25 |
| **B** | **Learning Facilities & infrastructure** |  |  |  |
|  | Lecture/theory room |  | 1 | 1:25 |
| **C** | **Consumable materials** |  |  |  |
|  | Printing papers |  |  | 1:5 |
|  | Stationery |  | 25 pcs | 1:1 |
|  | Printing ink cartilages |  |  |  |
|  | Internet |  | 200mbps | - |
| **D** | **Tools and Equipment** |  |  |  |
|  | Computers |  | 5 pcs | 1:5 |
|  | Printer |  | 1 pc | 1:25 |

# CARRY OUT AGRICULTURE MARKET RESEARCH

**UNIT CODE: 0811 551 09A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Carry our Agriculture market research

**Duration of Unit:**180 HOURS

**UNIT DESCRIPTION**

This unit specifies the competencies required to carry out Agricultural market research. It involves conducting Agri-enterprise market survey, collecting Agric- enterprise market data, analyzing Agri-enterprise market data, interpreting Agri-enterprise market data and selecting Agri-enterprise.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Conduct Agri-enterprise market survey | 40 |
| 2. | Collect Agri-enterprise market data | 50 |
| 3. | Analyze Agri-enterprise market data | 30 |
| 4. | Interpret Agri-enterprise market data | 30 |
| 5. | Select agri-enterprise | 30 |
| **Total** | | **180** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning outcomes** | **Content** | **Suggested assessment methods** |
| 1. 1. Conduct Agri-enterprise market survey | * 1. Preparation of Agri-enterprise data collection tools      1. Mobile data APP      2. GIS      3. Remote sensing      4. Online questionnaires      5. Social media tools   2. Mapping Agri-enterprise focus areas      1. Supply chain partners      2. Consumer groups      3. Reachable market groups      4. Export promotion agencies      5. Buyer groups      6. Market research farms      7. Trade associations   3. Conducting Agri-enterprise market survey | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. 2. Collect Agri-enterprise market data | 2.1Selection of Agri-enterprise data collection method   * + 1. Field observations     2. Field survey     3. Interviews     4. Sensor technology     5. Weather stations     6. Crop monitoring software     7. Supply chain tracking     8. Market surveys   1. Recruitment of Agri-enterprise data collection1 enumerators   2. Orientation Agri-enterprise enumerators   3. Obtaining Agri-enterprise consent   4. Collection of Agri-enterprise Production data      1. Field data      2. Weather data      3. Market data      4. Financial data      5. Supply chain data      6. Customer data      7. Regulatory data      8. Research operational data | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Analyze Agri-enterprise market data | * 1. Preparation of Agri-enterprise data analysis tools      1. Statistical software      2. Microsoft excel      3. Data visualization tools      4. Supply chain analytical tools      5. Market intelligence platforms   2. Processing of Agri-enterprise data   3. Analyzing Agri-enterprise data | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Interpret Agri-enterprise market data | * 1. Research context   Interpreting Agri-enterprise data   * 1. Comparing research key findings with research expectations   2. Establishing Agri-enterprise research limitations   3. Mapping of Agri-enterprise implications | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. Select Agri-enterprise | * 1. Weighing Agri-enterprise research implications   2. Making Agri-enterprise decision   3. Reviewing Agri-enterprise decision | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested method of delivery**

* Project
* Demonstration
* Practicals
* Discussions
* Direct instruction

**Recommended resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books &  E-Learning materials | Agricultural marketing books | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | classroom |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN or any brand | 1 | 1:25 |
|  | Computers | Any brand-5th generation and above Core i5 | 5 | 1:5 |
|  | internet | Reliable and fast |  |  |

# 

# AGRI-ENTERPRISE BUSINESS PLAN DEVELOPMENT

**UNIT CODE: 0811 551 12A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: develop Agri-enterprise business plan

**Duration of Unit:** 220 HOURS

**UNIT DESCRIPTION**

This unit specifies the competencies required to develop Agri-enterprise business plan. These involves fesigning an Agri-enterprise, designing Agri-enterprise market plan, designing an Agri-enterprise management plan, designing Agri-enterprise production/operation plan and designing an Agri-enterprise financial plan.

**Summary of learning outcomes**

By the end of this unit of learning, the trainee should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Design agri-enterprise | **50** |
| 2. | Design agri-enterprise market plan | **50** |
| 3. | Design an Agri-enterprise management plan | **40** |
| 4. | Design agri-enterprise production/operation plan | **40** |
| 5. | Design an agri-enterprise financial plan | **40** |
| **Total** | | **220** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1.Design Agri-enterprise | * 1. Agri-enterprise name identification * Relevance * Memorability * Availability * Cultural sensitivity * Future growth   1. Agri-enterprise location selection * Accessibility * Resource availability * Market demand * Regulatory environment * Community connections   1. Agri –enterprise products   and services establishment   * + 1. Crop produce     2. Livestock produce     3. Processed farm produce   1.3.4 Farm tools, equipment and machinery   * + 1. Farm inputs and supplies   1. Agri- enterprise ownership   Establishment   * + 1. Sole proprietorship     2. Partnership     3. Cooperatives and societies     4. Limited liability company   1. Agri-enterprise entry and growth strategies * Market research * Collaborations * Pilot projects * Funding and grants * Diversification * Scaling operation * Brand development * Innovation * Customer engagement and feedback   1. Agri-enterprise goals establishment * Vision and mission   definition   * SMART goals * Key performance indicators * Action plan * Monitoring and evaluation | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| **2.** Design Agri-enterprise market plan | * 1. Agri-enterprise customer identification * -market segmentation * -customer profiling * -need assessment * -relationship management * -data collection analysis   1. Agri-enterprise market competition analysis * Market structure * Competitive structure * Technological innovations * Consumer trends * Supply chain analysis * Market entry barriers   1. Agri-enterprise advertisement and   promotion methods   * + 1. Online marketing     2. Search engine optimization     3. Email marketing     4. Content marketing     5. Direct mail     6. Print advertising     7. Local advert     8. Customer testimonials     9. Influencer marketing     10. Event marketing   1. Agri-enterprise pricing strategies * -competitive pricing * -value based pricing * -cost-plus pricing * Dynamic pricing * -bunding pricing   1. Agri-enterprise sales strategies * -direct sales * Target marketing * Relationship building * Consultive selling * Promotional offer   1. Agri -enterprise distribution   strategies   * Direct distribution * Indirect distribution * Multi-channel distribution * Cold chain logistics * Online platform * Collaborative distribution | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. 3.Design Agri-enterprise management plan | * 1. Agri-enterprise organization * Business model development * Operational structure * Supply chain management * Human resource management * Financial management   1. Agri-enterprise management personnel * Farm managers * Production managers * Marketing managers * Sales managers * Financial managers * Human resource managers * Quality control managers   1. Agric- enterprise personnel duties and responsibilities   2. Agric- enterprise personnel remuneration and incentives * Base salary * Performance based incentives * Profit sharing * Commission structure * Bonuses * Health wellness benefits * Retirement plans   1. Agric- enterprise recruitment, promotion and appraisal strategies | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. 4.Design Agri-enterprise production/operation plan | * 1. Agri-enterprise layout design   2. Agri-enterprise production facilities identification   3. Agri–enterprise production strategy * Sustainable farming * Precision Agriculture * Organic farming * Diversified production systems * Value added production * Technology integration * Risk management strategies   1. Agri-enterprise production process * Planning and preparation * Soil preparation and land management * Crop and livestock management * Monitoring and maintenance * Harvesting * Post-harvest processing * Marketing and distribution * Feedback and review   1. Agri- enterprise production regulations      1. Food safety regulation      2. Environmental regulations      3. Animal welfare regulation      4. Work safety regulations      5. Organic certification standard      6. Trade and export regulations      7. Land use and zoning regulation      8. Water rights regulations | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |
| 1. 5.Design an Agri-enterprise financial plan | * 1. Agri-enterprise infrastructure * Production infrastructure * Processing Infrastructure * Logistics and Transportation Infrastructure * Marketing infrastructure   1. Agri -enterprise support services * Advisory service * Financial services * Input supply services * Marketing and distribution services * Processing services * Technological support services * Research and development * Policy and advocacy support * Quality assurance and certification * Training and capacity building   1. Agri-enterprise operations * Production operation * Post-harvest operation * Marketing operation * Distribution operation * Financial management * Human resource management * Technology integration * Sustainability operations * Risk management | * Practical * Project * Third party report * Portfolio of evidence * Written tests * Oral questioning |

**Suggested methods of delivery**

* Project
* Demonstration
* Practicals
* Discussion
* Direct instruction

**Recommended resource for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Item/Category** | **Description/Specification** | **Quantity** | **Recommended Ratio**  **(Item: Trainee)** |
| A | **Learning Materials** |  |  |  |
|  | Text books &E-learning material | Farm account books | 5 | 1:5 |
|  | Ledger book samples |  | 5 |  |
|  | Receipt book samples |  | 5 | 1:5 |
|  | Bank statements samples |  | 5 | 1:5 |
|  | Balance sheet samples | FBM book | 5 | 1:5 |
|  | Profit and loss account samples | FBM book | 5 | 1:5 |
| B | **Learning Facilities & infrastructure** |  |  |  |
|  | classroom |  | 1 | 1:25 |
| C | **Consumable materials** |  |  |  |
|  | notebooks | A4 SIZE | 25 | 1:1 |
|  | Flip chart |  | 1 | 1:25 |
| D | **Tools and Equipment** |  |  |  |
|  | Projectors | EPSON 2788 LUMEN | 1 | 1:25 |
|  | Computers | Any brand-5th generation and above COi5 | 5 | 1:5 |