A lion with two lions holding spears

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**REPUBLIC OF KENYA**

**COMPETENCY-BASED MODULAR CURRICULUM**

**FOR**

**NUTRITION AND DIETETICS**

**KNQF LEVEL 6**

**PROGRAMME ISCED CODE: 0915 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 Nutrition and Dietetics 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).

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 upskilling.

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

**CHAIR OF COUNCIL**

**ACKNOWLEDGEMENT**

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 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 Nutrition and Dietetics 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 Nutrition and Dietetics Sector acquire competencies to perform their work more efficiently and effectively.

**COUNCIL SECRETARY/ CEO**

**TABLE OF CONTENTS**

[FOREWORD iii](#_Toc197090460)

[ACKNOWLEDGEMENT v](#_Toc197090461)

[ACRONYMS AND ABBREVIATIONS viii](#_Toc197090462)

[ix](#_Toc197090463)

[CURRICULUM OVERVIEW x](#_Toc197090464)

[MODULE I 14](#_Toc197090465)

[DIGITAL LITERACY 14](#_Toc197090466)

[PRINCIPLES OF HUMAN NUTRITION 25](#_Toc197090467)

[NUTRITION LEGAL ETHICS 29](#_Toc197090468)

[NUTRITION CARE PROCESS 34](#_Toc197090469)

[MODULE II 40](#_Toc197090470)

[COMMUNICATION SKILLS 40](#_Toc197090471)

[HUMAN ANATOMY AND PHYSIOLOGY 43](#_Toc197090472)

[MATERNAL, INFANT AND YOUNG CHILD NUTRITION 49](#_Toc197090473)

[DIETETIC OPERATIONS 57](#_Toc197090474)

[MODULE III 64](#_Toc197090475)

[FIRST AID SERVICES 70](#_Toc197090476)

[MANAGEMENT OF SPECIALIZED MEALS 74](#_Toc197090477)

[NUTRITION IN COMMUNICABLE AND NON-COMMUNICABLE DISEASES 78](#_Toc197090478)

[MODULE IV 85](#_Toc197090479)

[ENTREPRENEURIAL SKILLS 85](#_Toc197090480)

[PRINCIPLES OF FOOD PROCESSING AND PRESERVATION 89](#_Toc197090481)

[MANAGEMENT MALNUTRITION CASES 93](#_Toc197090482)

[NUTRITION EDUCATION AND COUNSELLING 97](#_Toc197090483)

[MODULE V 101](#_Toc197090484)

[NUTRITIONAL BIOCHEMISTRY 101](#_Toc197090485)

[NUTRITIONAL EPIDEMIOLOGY 104](#_Toc197090486)

[NUTRITION IN EMERGENCY 109](#_Toc197090487)

[DIET THERAPY IN SYSTEMIC DISORDERS 113](#_Toc197090488)

[MODULE VI 117](#_Toc197090489)

[FOOD MICROBIOLOGY AND PARASITOLOGY TECHNIQUES 117](#_Toc197090490)

[DIET THERAPY IN NON-SYSTEMIC CONDITIONS 127](#_Toc197090491)

[NUTRITIONAL CARE IN MENTAL HEALTH 132](#_Toc197090492)

**ACRONYMS AND ABBREVIATIONS**

ABCs: Airways, Breathing and Circulation

AED: Automated External defibrillator

AIDS: Acquired Immunodeficiency Syndrome

ARA: Arachidonic acid

CPR: Cardiopulmonary ressucitation

DHA: Docosahexaenoic acid

DNA: Deoxyribonucleic acid

FBS: Fasting Blood Sugar

FGDs: Focused Group Discussions

GIS: Geographic Information Systems

GIT: Gastrointestinal Tract

HACCP: Hazard Analysis and Critical Control Point

HB: Haemoglobin

HIV: Human Immunodeficiency Virus

ICT: Information Communication Technology

KNDI: Kenya Nutritionists and Dieticians Institute

MCV: Mean Cell Volume

MoH: Ministry of Health

MUAC: Mid-upper Arm Circumference

PPEs: Personal Protective Equipment

QAIs: Qualifications Awarding Institutions

RBS: Random Blood Sugar

RNA: Ribonucleic acid

TVET: Technical and Vocational Education and Training

TVETA: Technical and Vocational Education and Training Authority

WHO: World Health Organization

KEY TO ISCED UNIT CODE



**CURRICULUM OVERVIEW**

The Nutrition and Dietetic Level 6 Curriculum consist of competencies that an individual must have to provide nutritional care, provide maternal, infant and young child nutrition, perform dietetics operations, manage specialized meals, provide nutrition in communicable and non-communicable diseases, manage malnutrition cases, conduct nutrition education and counselling, provide nutrition in emergency, provide diet therapy in systemic disorders, conduct nutrition research, provide diet therapy in non-systemic disorders and nutritional care in mental health.

**SUMMARY OF UNITS OF COMPETENCY**

|  |  |  |  |
| --- | --- | --- | --- |
| **MODULE I UNITS** | | | |
| **Unit**  **Category** | **Unit Code** | **Unit Name** | **Duration (Hrs)** |
| **Basic** | **0611 551 01A** | Digital Literacy | 40 |
| **Common** | **0915 551 02A** | Principles of Human Nutrition | 80 |
| **Common** | **0915 551 03A** | Nutrition Legal Ethics | 80 |
| **Core** | **0915 551 04A** | Nutrition Care Process | 100 |
| **Total** | | | **300** |
|  |  | **MODULE II UNITS** |  |
| **Unit**  **Category** | **Unit Code** | **Unit Name** | **Duration (Hrs)** |
| **Basic** | **0031 551 05A** | Communication Skills | 40 |
| **Common** | **0915 551 06A** | Human Anatomy and Physiology | 140 |
| **Core** | **0915 551 07A** | Maternal, Infant and Young Child  Nutrition | 120 |
| **Core** | **0915 551 08A** | Dietetics Operations | 120 |
| **Total** | | | **420** |
|  |  | **MODULE III UNITS** |  |
| **Unit**  **Category** | **Unit Code** | **Unit Name** | **Duration (Hrs)** |
| **Basic** | **0417 551 09A** | Work Ethics and Practices | 40 |
| **Common** | **0915 551 10A** | First Aid Services | 60 |
| **Core** | **0915 551 11A** | Management of Specialized Meals | 160 |
| **Core** | **0915 551 12A** | Nutrition in Communicable and  Non-Communicable Diseases | 140 |
| **Total** | | | **400** |
|  |  | **Industrial Training** **I** | **480 HRS** |
|  |  | **MODULE IV UNITS** |  |
| **Unit**  **Category** | **Unit Code** | **Unit Name** | **Duration (Hrs)** |
| **Basic** | **0413 551 13A** | Entrepreneurial Skills | 40 |
| **Common** | **0721 551 14A** | Principles of Food Processing and Preservation | 100 |
| **Core** | **0915 551 15A** | Management of Malnutrition Cases | 100 |
| **Core** | **0915 551 16A** | Nutrition Education and  Counselling | 100 |
| **Total** | | | **340** |
| **MODULE V UNITS** | | | |
| **Unit**  **Category** | **Unit Code** | **Unit Name** | **Duration (Hrs)** |
| **Common** | **0915 551 17A** | Nutritional Biochemistry | 80 |
| **Common** | **0915 551 18A** | Nutritional Epidemiology | 80 |
| **Core** | **0915 551 19A** | Nutrition in Emergency | 100 |
| **Core** | **0915 551 20A** | Diet Therapy in Systemic Conditions | 120 |
|  |  |  |  |
| **Total** | | | **380** |
|  |  | **MODULE VI UNITS** |  |
| **Unit**  **Category** | **Unit Code** | **Unit Name** | **Duration (Hrs)** |
| **Common** | **0915 551 21A** | Food Microbiology and Parasitology | 120 |
| **Core** | **0915 551 22A** | Conduct Nutrition Research | 150 |
| **Core** | **0915 551 23A** | Diet Therapy in Non-Systemic Conditions | 120 |
| **Core** | **0915 551 24A** | Nutritional Care in Mental Health | 100 |
| **Total** | | | **490** |
|  |  | **Industrial Training II** | **480 HRS** |
| **GRAND TOTAL** | |  | **3290 HRS** |

The total duration of the course is **3290** hours (110 weeks at 30 hours per week).

**Entry Requirements**

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

Kenya Certificate of Secondary Education (KCSE) mean grade C-,

1. KCSE grade D+ (plus) in the following **mandatory** subjects:
2. Chemistry or physical sciences
3. Biology or biological sciences
4. English or Kiswahili
5. KCSE grade of D (plain) in **any** of the following subjects:
6. Mathematics
7. Physics
8. Home science
9. Agriculture or
10. General sciences
11. Any other qualification equivalent to that of Nutrition and Dietetics Level 5 as determined by TVET regulators and any relevant professional bodies.

**Industrial attachment**

An individual enrolled in this course will be required to undergo 2 industrial attachments for a minimum period of 960 hours (each 480 hours) in the Nutrition and Dietetics sector and any other relevant nutrition and dietetics field.

**Trainer qualification**

A trainer for any of the Units of Competency in this course must:

1. Have at least a minimum of a level 7 qualification or its equivalent in the area of specialization.
2. Be licensed by Kenya Nutrition and Dietetics Institute (KNDI)
3. Be licensed by Technical and Vocational and Educational Training Authority (TVETA).

**Assessment Requirements**

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. 30:70 for the units in modules I, II, III and IV.
6. 40:60 for the units in module V and VI
7. 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 core Unit of Competency. To be issued with the **Kenya National TVET Certificate** in Nutrition and Dietetics Level 6, the candidate must demonstrate competence in all the Units of Competency as given in the qualification pack. A Statement of Attainment certificate may be issued upon demonstration of competence in a certifiable element within a unit.

The certificates will be issued by the Qualification Awarding Institution

# MODULE I

**DIGITAL LITERACY**

**UNIT CODE: 0611 551 01A**

**UNIT DURATION: 40 HOURS**

**Relationship with Occupational Standards**

The unit addresses the Unit of Competency: Apply Digital Literacy

**Unit Description**

The unit covers the competencies required to apply digital literacy. It involves operating computer devices, solving tasks using the office suite, managing data and information, performing online communication and collaborations, applying cybersecurity skills, performing online jobs and applying job entry techniques.

**Summary of Learning Outcomes**

1. Operate computer devices
2. Solve tasks using office suite
3. Manage data and information
4. Perform online communication and collaborations
5. Apply cybersecurity skills
6. Perform online jobs
7. Apply job entry techniques.

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration (Hours)** | **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   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.   1. Classification of computer software   2. Operating system functions   3. Procedure for turning/off a computer   4. Mouse use techniques   5. Keyboard Parts and Use Techniques   6. Desktop Customization   7. File and Files Management using an operating system   8. Computer Internet Connection Options      1. Mobile Networks/Data Plans      2. Wireless Hotspots      3. Cabled (Ethernet/Fiber)      4. Dial-Up      5. Satellite   9. Computer external devices management      1. Device connections      2. Device controls (volume controls and display properties) | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| * + - 1. Solve tasks using office suite | * 1. Meaning and Importance of Word Processing   2. Examples of Word Processors   3. Working with word documents      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 presentations       8. Switch between open presentations   21. Developing a presentation       1. Presentation views       2. Slides       3. Master slide   22. Text       1. Editing text       2. Formatting       3. Tables   23. Charts       1. Using charts       2. Organization charts   24. Graphical objects       1. Insert, manipulate       2. Drawings   25. Prepare outputs       1. Applying slide effects and transitions       2. Check and deliver          1. Spell check a presentation          2. Slide orientation          3. Slide shows, navigation.          4. Print presentations (slides and handouts) | 14 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| * + - 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. News Group      8. Ecommerce   4. Types of Internet Access Applications   5. Web browsing concepts      1. Key concepts      2. Security and safety   6. Web browsing      1. Using the web browser      2. Tools and settings      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)   3.9 Emerging issues in internet | 6 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment. * Third party report |
| * + - 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   5. Online collaboration tools      1. Online Storage (Google Drive)      2. Online productivity applications (Google Docs & Forms)      3. Online meetings (Google Meet/Zoom)      4. Online learning environments      5. Online calendars (Google Calendars)      6. Social networks (Facebook/Twitter - Settings & Privacy)   6. Preparation for online collaboration      1. Common setup features      2. Setup   7. Mobile collaboration      1. Key concepts      2. Using mobile devices      3. Applications Synchronization | 4 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment. * Third party report |
| * + - 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 information communication technology (ICT) in Kenya      1. The Computer Misuse and Cybercrimes Act No. 5 of 2018.      2. The Data Protection Act No. 24 Of 2019 | 4 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment. * Third party report |
| * + - 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. | **4** | * Practical * Portfolio of Evidence * Written assessment * Oral assessment. * Third party report |
| * + - 1. Apply job entry techniques | * 1. Types of job opportunities      1. Self-employment      2. Service provision      3. product development      4. salaried employment         1. Sources of job opportunities   2. Resume/ curriculum vitae      1. What is a CV      2. How long should a CV be      3. What to include in a CV      4. Format of CV      5. How to write a good CV      6. Don’ts of writing a CV   3. Job application letter      1. What to include      2. Addressing a cover letter      3. Signing off a cover letter   4. Portfolio of Evidence      1. Academic credentials      2. Letters of commendations      3. Certification of participations      4. Awards and decorations   5. Interview skills      1. Listening skills      2. Grooming      3. Language command      4. Articulation of issues      5. Body language      6. Time management      7. Honesty.      8. Generally knowledgeable in current affairs and technical area | 2 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment. * Third party report |

**Suggested Methods Instruction**

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

**Recommended Resources for 25Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/Specifications** | **Quantity** | **Recommended Ratio (Item: Trainee)** |
| **A** | **Learning Materials** | | | |
|  | Installation Manuals | Detailed guides for equipment and software installation and troubleshooting | 5 pcs | 1:5 |
|  | PowerPoint Presentations | For trainer’s use, covering course content and practical applications | 1 | 1:25 |
|  | Projector | Functional projector for displaying content during presentations | 1 | 1:25 |
|  | White board | Quality whiteboard of approximately 6 ft by 3 ft for writing during theory instruction | 1 | 1:25 |
|  | Printer | An ink-jet, laser-jet or toner-cartridge printer for printing notes, instructions and working drawings | 1 | 1:25 |
|  | Templates | Templates for creating various documents e.g. CV, Cover Letter, etc. | 25 | 1:1 |
| **B** | **Learning Facilities & Infrastructure** | | | |
|  | Lecture/Theory Room  /Learning Resource  Area\* | Spacious, equipped with projectors and Seats for 25trainees, approximately 45 sqm (5 m x 9 m) | 1 | 1:25 |
|  | Computer Laboratory | Equipped with at least 25 functional computers with internet connectivity and the following software:   * + - Windows/ Linux/ Macintosh Operating System     - Microsoft Office Software     - Google Workspace Account     - Antivirus Software | 25 | 1:1 |
|  |  |  |  |  |
| **C** | **Consumable Materials** | | | |
|  | Printing Papers | A4 and A3 Printing papers suitable for the task | Enough |  |
|  | Whiteboard Marker Pens | Dry-erase markers for trainers use. Assorted colors | Enough |  |
|  | Storage devices | Any of the following storage devices:   * USB Flash Drive * USB Hard Drive * Compact Disks (CDs) * Digital Versatile Disks (DVDs) | Enough |  |

**PRINCIPLES OF HUMAN NUTRITION**

**UNIT CODE: 0915 551 02A**

**UNIT DURATION: 80 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Principles of Human Nutrition

**Unit Description**

This unit describes competencies required to apply principles of human nutrition. It includes applying knowledge of nutrition, applying knowledge of macronutrients and micronutrients, and apply knowledge of socio-cultural and behavioural perspectives in nutrition.

**Summary of Learning Outcomes**

1. Apply knowledge of nutrition
2. Apply knowledge of macronutrients
3. Apply knowledge of micronutrients
4. Apply knowledge of socio-cultural and behavioral perspectives in nutrition

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Apply knowledge of nutrition | 1. Basic nutritional concepts    * 1. Definition of terms         1. Nutrition         2. Nutrients         3. Macronutrients         4. Micronutrients         5. Balanced diet         6. Malnutrition         7. Food         8. Dietetics         9. Nutrition status         10. Nutritionist         11. Dietician 2. Orientation to the field of nutrition and dietetics    * 1. History of nutrition and dietetics      2. Importance of studying nutrition      3. Career pathways in nutrition and dietetics 3. Roles of the nutrition care team   1.3.1 Nutritionist  1.3.2 Dietician  1.3.3 Pharmacist  1.3.4 Nurse | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of macronutrients | * 1. Classes of macronutrients      1. Carbohydrates      2. Proteins      3. Lipids   2. Organic food sources for macronutrients   3. Functions of macronutrients   4. Digestion of macronutrients   5. Energy metabolism   6. Macronutrient deficiencies      1. Marasmus      2. Kwashiorkor      3. Marasmic kwashiorkor | 20 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of micronutrients | * 1. Classes of micronutrients      1. Vitamins         1. Water soluble vitamins         2. Fat soluble vitamins      2. Minerals         1. Macro minerals         2. Micro minerals   2. Food sources micronutrients   3. Functions of micronutrients   4. Micronutrients deficiencies      1. Anaemia      2. Goitre      3. Beriberi      4. Pellagra      5. Scurvy      6. Vitamin A deficiencies      7. Vitamin D deficiencies | 15 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of socio- cultural and behavioral perspectives in nutrition | * 1. Social factors in nutrition      1. Social class      2. Socio-economic aspects      3. Knowledge and attitude      4. Religion   2. Cultural aspects in nutrition      1. Cultural notions      2. Food taboos      3. Food myths and misconceptions   3. Behavioral traits in nutrition      1. Personality traits      2. Lifestyle changes      3. Emotional      4. Personal preferences      5. Environment | 15 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| No: | **Type of material** | **Quantity** | **Ratio** |
|  | Flip charts | - | - |
|  | Whiteboard marker | - | - |
|  | Assorted Food models | 5 | 1:5 |
|  | Food samples | 5 | 1:5 |

**Tools and Equipment**

|  |  |  |  |
| --- | --- | --- | --- |
| No: | **Item** | **Quantity** | **Ratio** |
|  | White board | 1 | 1:25 |
|  | Laptop | 1 | 1:25 |
|  | Projector | 1 | 1:25 |
|  | Storage containers | 5 | 1:5 |

**Personal Protective Equipment (PPEs)**

|  |  |  |  |
| --- | --- | --- | --- |
| **No:** | **Item** | **Quantity** | **Ratio** |
|  | Dust coat | 25 | 1:1 |
|  | Closed shoes | 25 | 1:1 |
|  | Gloves | 25 | 1:1 |

**NUTRITION LEGAL ETHICS**

**UNIT CODE: 0915 551 03A**

**UNIT DURATION: 80 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Nutrition Legal Ethics

**Unit Description**

This unit describes competencies required to apply nutrition legal ethics. It involves identifying sources of information on nutrition-legal ethics, applying knowledge of nutrition-legal ethics and applying law enforcement policy on nutrition-legal ethics.

**Summary of Learning Outcomes**

1. Identify sources of information on nutrition-legal ethics
2. Apply knowledge of nutrition-legal ethics
3. Apply law enforcement policy on nutrition-legal ethics

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Identify sources of information on nutrition-legal ethics | 1. Relevant sources of law    * 1. Definition of terms      2. Sources of law      3. Kenya Constitution 2010      4. Judicial precedence      5. Religious law      6. Relevant legislation      7. Common law and equity      8. International law      9. Customary law      10. Functions of law 2. Process of legislation    * 1. Steps of law development 3. Acts governing nutrition and dietetics    * 1. Nutrition and dietetics act and policy | 20 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of nutrition-legal ethic | * 1. The structure of Kenyan Judicial system      1. Arms of government and their functions      2. Supreme court      3. Court of appeal      4. High court      5. Magistrates      6. Tribunal   2. Employment terms      1. Definition of terms      2. Types of employment      3. Employment act   3. Specific occupations in nutrition and dietetics      1. Clinical nutrition      2. Clinical dietician      3. Community nutrition      4. Food service      5. Public health nutrition      6. Sports nutrition   4. Medical-legal and ethical issues in nutrition and dietetics   5. Legislations on preservation of life and health | 32 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply law enforcement policy on nutrition-legal ethics | * 1. Public health and safety legislation acts      1. Food and drug act      2. Public health act      3. Poisonous substances act      4. Environmental conservation act      5. Public procurement and asset disposal act      6. Nutrition and dietetics act   2. Pharmacy and poisons legislations   3. Registration of trade and service marks procedures      1. Intellectual property      2. Trade marks      3. Service marks   4. Principles and claims procedures in insurance      1. Law of insurance   5. Legislations and regulations on trade licensing      1. Administrative, authorities and licensing law | 28 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

* Discussions
* Direct instruction
* Seminars

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| **Materials** | | | |
| **No** | **Type of material** | **Quantity** | **Ratio** |
| 1 | Internet connection | - | - |
| 2 | Flip charts | - | - |
| 3 | Whiteboard markers | - | - |
| 4 | Kenya constitution 2010 | 5 | 1:5 |
| **Tools and Equipment** | | | |
| 1 | Laptops | 1 | 1:25 |
| 2 | Whiteboards | 1 | 1:25 |
| 3 | Projectors | 1 | 1:25 |

**NUTRITION CARE PROCESS**

**UNIT CODE: 0915 551 04 A**

**UNIT DURATION: 100 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Provide Nutrition Care Process

**Unit Description**

This unit describes competencies required to provide nutrition care. It involves performing nutrition assessment, formulating nutrition diagnosis and implementing nutrition intervention. It also includes monitoring and evaluating nutrition intervention.

**Summary of Learning Outcomes**

1. Perform nutrition assessment
2. Formulate nutrition diagnosis
3. Implement nutrition intervention
4. Monitor and evaluate nutrition intervention

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Perform nutrition assessment | * 1. Overview of nutrition care process      1. Definition of terms         1. Nutrition         2. Nutrition care         3. Nutrition status         4. Nutrition care process         5. Diagnosis         6. Interventions      2. Significance of nutrition care process      3. Steps involved in nutrition care process      4. Types of PPEs         1. Gloves         2. Face masks         3. Lab coat         4. Bio hazard waste bins      5. Importance of PPEs      6. Care, Maintenance & Disposal of PPEs   2. Anthropometric measurements methods and tools.      1. Anthropometric measurements         1. Height/Length,         2. Weight         3. BMI         4. Mid-upper Arm Circumference (MUAC),         5. Waist Circumference,         6. Hip circumference         7. Head circumference      2. Anthropometric tools         1. Weighing scale         2. MUAC tapes         3. Stadiometer         4. Reference charts         5. Tape measure         6. Skinfold calipers   3. Biochemical parameters:      1. Types of samples         1. Protein deficiency- Serum Albumin, Pre-albumin         2. Glucose and Diabetes Markers- Fasting Blood Glucose, Haemoglobin A1c (HbA1c)         3. Lipid profile         4. Vitamin deficiency-Vitamin A; B-complex, D         5. Mineral deficiency- iron, zinc, calcium, and iodine   4. Clinical and physical assessments      1. Medical history      2. Physical Examination         1. General appearance         2. Skin condition         3. Hair and nails         4. Eyes         5. Mouth and tongue         6. Teeth and gums   5. Dietary assessment      1. Methods and tools of dietary assessment         1. 24-hour recall,         2. Food frequency questionnaire, Dietary Records         3. Diet History         4. Weighed Food Records         5. Duplicate Diet Method         6. Observation   6. Social economic assessment      1. Income and Economic Resources      2. Education and Nutrition Knowledge      3. Employment and      4. Occupation      5. Access to Food and Food Environments      6. Cultural and Social Norms      7. Household Size and Composition      8. Housing and Living Conditions      9. Health Care Access and Social Support   7. Functionality assessments      1. Body functionality analysis   8. Assessment data documentation      1. Paper-Based Documentation      2. Electronic Health Records (EHRs)      3. Nutrition Software and Mobile Apps | 12 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 2. Formulate nutrition diagnosis | 1. Underlying medical condition    * 1. Gastrointestinal disorders      2. Metabolic disorders      3. Malabsorption syndromes      4. Protein energy malnutrition      5. Chronic diseases      6. Neurological conditions    1. Client’s nutrition related problem       1. Food related allergies and intolerances       2. Malnutrition       3. Micronutrient deficiencies    2. Etiology and contributing risk factors       1. Biological Factors       2. Medical Conditions       3. Dietary Habits       4. Socioeconomic Factors       5. Psychological Factors       6. Environmental Factors    3. Nutrition condition Signs and Symptoms    4. Nutrition diagnosis documentation       1. Formulate Problem Etiology Signs and Symptoms (PES) statement | 32 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Implement nutrition intervention | * 1. Nutrition need      1. Micronutrients      2. Macronutrients   2. Appropriate nutrition intervention      1. Supplementation      2. Education and counselling      3. Diet planning      4. Deworming   3. Intervention plan      1. Dietary Requirements      2. Diet prescriptions & descriptions      3. Food Choices      4. Meal Patterns      5. Portion Control      6. Food Preparation Methods      7. Sample Menus   4. Implementation of designed intervention plan      1. Facilitating Implementation      2. Addressing Challenges | 24 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Monitor and evaluate nutrition intervention | * 1. Key indicators      1. Anthropometric      2. Biochemical      3. Clinical      4. Dietary   2. Development of monitoring schedule   3. Monitoring and evaluation of client progress      1. Regular Check-Ins      2. Clinical Monitoring      3. Biochemical Testing      4. Symptom Tracking      5. Progress Reports      6. Electronic Health Records (EHR)      7. Client Food Journals or Diaries      8. Treatment Plans review      9. Implementation of reviewed intervention changes   4. Documentation of intervention outcomes | 12 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |

**Suggested Methods of Instruction**

* Demonstrations
* Practical
* Discussions
* Direct instruction
* Role play
* Simulation

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| Materials | | | |
| No | Type of material | Quantity | Ratio |
| 1 | Internet connection | - | - |
| 2 | Assorted flash cards | - | - |
| 3 | Flip charts | - | - |
| 4 | Whiteboard markers | - | - |
| Tools and Equipment | | | |
| 1 | Laptops | 1 | 1:25 |
| 2 | Whiteboards | 1 | 1:25 |
| 3 | Projectors | 1 | 1:25 |
| 4 | Weighing Scale | 13 | 1:2 |
| 5 | Height/Stadiometers | 13 | 1:2 |
| 6 | Measuring Tape | 13 | 1:2 |
| 7 | Calipers | 13 | 1:2 |
| 8 | Body Mass Index (BMI) wheel | 13 | 1:2 |
| 9 | Glucometer | 5 | 1:5 |
| 10 | Blood Pressure Machine | 5 | 1:5 |
| 11 | Food Frequency Questionnaires (FFQs) | 25 | 1:1 |
| 12 | 24-Hour Dietary Recall | 25 | 1:1 |
| 13 | Food Diaries | 25 | 1:1 |
| 14 | Electronic Health Records (EHRs) | 5 | 1:5 |
| 15 | Food Models and Visual Aids | 5 sets | 1:5 |
| 16 | MUAC Tapes | 13 | 1:2 |
| 17 | Scientific calculator | 25 | 1:1 |
| Personal Protective Equipment | | | |
| 1 | Dust coat or gown | 25 | 1:1 |
| 2 | Closed shoes | 25 | 1:1 |
| 3 | Gloves | 25 | 1:1 |
| 4 | Face masks | 25 | 1:1 |

# MODULE II

**COMMUNICATION SKILLS**

**UNIT CODE:** **0031 551 05A**

**UNIT DURATION: 40 Hours**

**Relationship with Occupational Standards**

This unit addresses the Unit of Competency: Apply Communication Skills

**Unit Description**

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

**Summary of Learning Outcomes**

1. Apply communication channels.
2. Apply written communication skills.
3. Apply non-verbal skills.
4. Apply oral communication skills.
5. Apply group communication skills.

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

| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **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 | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply written communication skills | * 1. Types of written communication   2. Elements of communication   3. Organization requirements for written communication | 2 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply non-verbal communication skills | * 1. Utilize body language and gestures   2. Apply body posture   3. Apply workplace dressing code | 4 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply oral communication skills | * 1. Types of oral communication pathways   2. Effective questioning techniques   3. Workplace etiquette   4. Active listening | 4 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply group discussion skills | * 1. Establishing rapport      1. Facilitating resolution of issues      2. Developing action plans      3. Group organization techniques      4. Turn-taking techniques      5. Conflict resolution techniques      6. Team-work | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

1. Discussion
2. Roleplaying
3. Simulation
4. Direct instruction
5. Demonstration
6. Field trips

**Recommended Resources for 25trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/Specifications** | **Quantity** | **Recommended Ratio (Item: Trainee)** |
| **A** | **Learning Materials** | | | |
|  | Internet connection | Internet connection to aid communication between trainees | - | - |
|  | PowerPoint Presentations | For trainer’s use, covering course content and practical applications | 1 | 1:25 |
|  | Projector | Functional projector for displaying content during presentations | 1 | 1:25 |
|  | White board | Quality whiteboard of approximately 6 feet by 3 feet for writing during theory instruction | 1 | 1:25 |
|  | Printer | An ink-jet, laser-jet or toner-cartridge printer for printing notes, instructions and working drawings | 1 | 1:25 |
| **B** | **Learning Facilities & Infrastructure** | | | |
|  | Lecture/Theory Room  /Learning Resource  Area\* | Spacious, equipped with projectors and Seats for 25trainees, approximately 45 sqm (5 m x 9 m) | 1 | 1:25 |
|  | Computer Laboratory | Equipped with at least 25 functional computers with internet connectivity and the following software:   * + - Windows/ Linux/ Macintosh Operating System     - Microsoft Office Software     - Google Workspace Account     - Antivirus Software | 25 | 1:1 |
|  |  |  |  |  |
| **C** | **Consumable Materials** | | | |
|  | Printing Papers | A4 and A3 Printing papers suitable for the task | Enough |  |
|  | Flashcards | For carrying out various activities by trainees | Enough |  |
|  | Flipcharts | Sufficient for group work activities and displaying | Enough |  |
|  | Whiteboard Marker Pens | Dry-erase markers for trainer’s use. Assorted colours | Enough |  |

# HUMAN ANATOMY AND PHYSIOLOGY

**UNIT CODE**: **0915 551 06 A**

**UNIT DURATION**: **140 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Knowledge of Human Anatomy and Physiology

**Unit Description**

This unit standard specifies the competencies required to apply knowledge of human anatomy and physiology. It involves applying knowledge of organization of the human body, applying knowledge of body fluids and their functions, applying knowledge of body tissues and membranes and their functions, applying knowledge of body cavities, applying knowledge of the human skeletal system and body joints, applying knowledge of the major muscles of the body and their functions, applying knowledge of circulatory and lymphatic systems and their functions, applying knowledge of the endocrine system and its functions, applying knowledge of the nervous system special senses and their functions, applying knowledge of the digestive system and its functions, applying knowledge of the urinary system and reproductive systems and their functions and applying knowledge of the respiratory system and its functions.

**Summary of Learning Outcomes**

1. Apply knowledge of organization of the human body
2. Apply knowledge of body fluids and their functions
3. Apply knowledge of body tissues, membranes and their functions
4. Apply knowledge of body cavities
5. Apply knowledge of the human skeletal system and body joints
6. Apply knowledge of the major muscles of the body and their functions
7. Apply knowledge of circulatory and lymphatic systems and their functions
8. Apply knowledge of the endocrine system and its functions
9. Apply knowledge of the nervous system special senses and their functions
10. Apply knowledge of the digestive system and its functions
11. Apply knowledge of the urinary system and reproductive systems and their functions
12. Apply knowledge of the respiratory system and its functions

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Apply knowledge of organization in the human body | * 1. Anatomical structures, positions, planes and directions      1. Definition of terms      2. Types of anatomical positions, planes and directions   2. Knowledge of human body organization      1. Body cell      2. Body tissues      3. Body organs      4. Organ system   3. Human cell structures   1.3.1. Cell organelles and their functions   * 1. The human cell cycle      1. Introduction to the cell cycle      2. Phases of the cell cycle   2. Homeostasis      1. Definition      2. Components of homeostasis      3. Importance of homeostasis | 16 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of body fluids and their functions | * 1. Divisions of the body fluid      1. Components of extracellular fluid      2. Components of intracellular fluids   2. Importance of body fluids      1. Importance of extracellular fluid      2. Importance of intracellular fluid   3. Body electrolytes | 6 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of body tissues and membranes and their functions | * 1. Types and structure of tissues      1. Definition of terms      2. Types and structures of tissues   2. Functions of tissues   3. Types and structures of body membranes      1. Definition of terms      2. Types and structures of body membranes   4. Functions of membranes | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of body cavities | * 1. Body cavities      1. Definition of body cavities      2. Types of body cavities         1. Content of dorsal cavities         2. Content of ventral cavity         3. Contents of body cavities   2. Functions of body cavities | 8 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of the human skeletal system and body joints | * 1. Structure of the human skeleton.      1. Structure of axial skeleton      2. Structure of appendicular skeleton   2. Components of the axial skeleton      1. Skull      2. Ribcage      3. Vertebral column   3. Components of the appendicular skeleton      1. Pectoral limbs      2. Pelvic limbs      3. Pectoral and pelvic girdles   4. Joints      1. Classification of joints      2. Types of joints   5.4.2.1 Movable joint  5.4.2.2 Immovable joint   * 1. Disorders of the skeletal system | 14 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of the major muscles of the body and their functions | * 1. Structure of muscles      1. Introduction to Muscles   2. Types of muscles   6.2.1 Skeletal muscles   * + 1. Smooth muscles     2. Cardiac muscles   1. Disorders of the muscles | 8 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of circulatory and lymphatic systems and their functions | * 1. Structure of the circulatory system      1. Anatomy of the heart   2. Blood circulation      1. Blood circulation process   3. Functions of the circulatory system   4. Components of lymphatic system      1. Anatomy of lymphatic system      2. Components of lymphatic system   5. Functions of the lymphatic system   6. Disorders of the circulatory and lymphatic system | 16 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of the endocrine system and its functions | * 1. Components of endocrine system      1. Glands      2. Hormones   2. Glands and their hormones      1. Pituitary gland      2. Thyroid gland      3. Adrenal glands      4. Ovaries      5. Testes   8.3 Hormonal disorders | 8 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of the nervous system special senses and their functions | * 1. Neurons      1. Parts of the neuron and their functions      2. Types of the neuron         1. Sensory neurons   9.1.2.2 Motor neurons  9.1.2.3 Interneurons   * 1. Divisions of the nervous system      1. Central nervous system      2. Peripheral nervous system   2. Nervous reflexes and impulses      1. Voluntary reflexes      2. Involuntary reflexes      3. Disorders of the nervous system   3. Structure and functions of sensory organs      1. Eye      2. Ear      3. Tongue      4. Nose      5. Skin   4. Disorders of the sensory organs | 18 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of the digestive system and its functions | * 1. Digestive system      1. Components of digestive system      2. Functions ofdigestive system   2. Process of digestion   3. Disorders of the digestive system | 8 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of the urinary system and reproductive systems and their functions | * 1. Structure of urinary system      1. Kidney      2. Nephron      3. Ureter      4. Urinary bladder      5. Urethra   2. Process of urine formation   3. Acid base balance      1. Types and control of acid base balance      2. Abnormalities acid base balance   4. Disorders of the urinary system   5. Structure of the human reproductive system      1. Female reproductive system      2. Male reproductive system   6. Fertilization process   7. Disorders of the reproductive system      1. Disorders of male reproductive system      2. Disorders of female reproductive system | 18 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of the respiratory system and its functions | * 1. Respiratory system      1. Structure of the respiratory system         1. Nose         2. Trachea         3. Bronchi         4. Lungs         5. Diaphragm      2. Functions of the respiratory system      3. Adaptation of the respiratory system to its function   2. Respiration process   3. Disorders of the respiratory system | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

* Demonstration
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |
| --- | --- | --- |
| **MATERIALS** | | |
|  | **Quantity** | **Ratio** |
| **Resources** | | |
| Internet connection | **-** | **-** |
| Laptop | 1 | 1:25 |
| Projector | 1 | 1:25 |
| Whiteboard | 1 | 1:25 |
| Flip Charts | - | - |
| Body system charts | 5 | 1:5 |
| Human systems manikins | 5 | 1:5 |
| Human body skeleton | 1 | 1:25 |
| **Tools and Equipment** | | |
| Microscope | 5 | 1:5 |
| Slides (packs) | 5 | 1:5 |
| Stain | - | - |
| **Personal Protective Equipment (PPEs)** | | |
| Laboratory coat | 25 | 1:1 |
| Face masks | 25 | 1:1 |
| Face shields | 25 | 1:1 |
| Closed shoes | 25 | 1:1 |
| Gloves | 25 | 1:1 |

**MATERNAL, INFANT AND YOUNG CHILD NUTRITION**

**UNIT CODE: 0915 551 07A**

**UNIT DURATION: 120 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Provide Maternal, Infant and Young Child Nutrition

**Unit Description**

This unit standard specifies the competencies required to provide maternal, infant and young child nutrition. It involves providing nutrition in pregnancy, providing nutrition in lactation, providing infant nutrition and providing young child nutrition

**Summary of Learning Outcomes**

1. Provide nutrition in pregnancy
2. Provide nutrition in lactation
3. Provide infant nutrition
4. Provide young child nutrition

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Provide nutrition in pregnancy | * 1. Nutritional needs before and during pregnancy      1. Introduction to nutrition before and during pregnancy      2. Importance of preconception nutrition      3. Assessment of nutritional needs before and during pregnancy         1. Anthropometry         2. Biochemical assessments         3. Clinical monitoring         4. Dietary assessments            1. Key nutritional needs            2. Iron            3. Iodine            4. Vitamin D            5. Macronutrients            6. Folic Acid            7. Zinc   2. Pregnancy related complications      1. Introduction to pregnancy related complications      2. Common pregnancy complications         1. Gestational diabetes         2. Ectopic pregnancy         3. Anemia         4. Preterm         5. Depression and anxiety         6. *Pica*         7. Stillbirth         8. Miscarriage         9. Pre-eclampsia   3. Nutrition intervention plan      1. Introduction to nutrition intervention      2. Steps in developing a nutrition plan      3. Types of nutrition intervention         1. Supplementation         2. Diet planning         3. Deworming         4. Education and counselling   4. Carrying out nutrition intervention      1. Introduction to carrying out nutrition intervention      2. Steps in implementing nutrition intervention      3. Tools and resources for implementation   5. Monitoring and evaluating nutrition intervention      1. Introduction to monitoring nutrition intervention      2. Steps in monitoring nutrition intervention      3. Tools and methods for tracking nutrition intervention         1. Anthropometry         2. Biochemical assessments         3. Dietary assessments         4. Clinical monitoring         5. Direct observations      4. Indicators for successful nutrition intervention      5. Challenges in monitoring and evaluating nutrition intervention | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Provide nutrition in lactation | * 1. Nutritional needs in lactation      1. Introduction to nutrition in lactation      2. Importance of nutrition in lactation      3. Assessment of nutritional needs in lactation         1. Anthropometry         2. Biochemical assessments         3. Clinical monitoring         4. Dietary assessments            1. Energy requirements            2. Macronutrients            3. Iron            4. Iodine            5. Vitamin D            6. Folic Acid            7. Zinc            8. Micronutrients influencing milk quality            9. Increased Fluid Needs   2. Breastfeeding related complications      1. Introduction to breastfeeding related complications      2. Common breastfeeding complications      3. Sore/cracked nipples      4. Breast engorgement      5. Mastitis      6. Nipple vasospasm      7. Inverted nipples      8. Flat nipples   3. Introduction to nutrition intervention      1. Steps in developing a nutrition plan      2. Types of nutrition intervention         1. Supplementation         2. Diet planning         3. Deworming         4. Education and counselling   4. Carrying out nutrition intervention      1. Introduction to carrying out nutrition intervention      2. Steps in implementing nutrition intervention      3. Tools and resources for implementation   5. Monitoring and evaluating nutrition intervention      1. Introduction to monitoring nutrition intervention      2. Steps in monitoring nutrition intervention      3. Tools and methods for tracking nutrition intervention         1. Anthropometry         2. Biochemical assessments         3. Dietary assessments         4. Clinical monitoring         5. Direct observations         6. Indicators for successful nutrition intervention         7. Challenges in monitoring and evaluating nutrition intervention | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Provide infant nutrition | * 1. Nutritional needs for infants      1. Introduction to nutrition needs for infants      2. Importance of nutrition in infants      3. Assessment of nutritional needs in infants         1. Anthropometry         2. Biochemical assessments         3. Clinical monitoring         4. Dietary assessments            1. Macronutrients            2. Iron            3. Calcium            4. Vitamin D            5. Zinc            6. Vitamin A            7. Vitamin C            8. Essential Fatty Acids (Docosahexaenoic acid (DHA) and Arachidonic acid (ARA)            9. Fibre            10. Water   2. Infant nutrition related complications      1. Introduction to infant nutrition related complications      2. Common infant nutrition complications         1. Malnutrition         2. Iron deficiency         3. Vitamin D deficiency         4. Overfeeding         5. Inappropriate formula feeding         6. Breast feeding issues         7. Cleft palate         8. Oral thrush         9. Tongue tie         10. Infections and contaminations         11. Dehydration         12. Food allergies and intolerances         13. Failure to thrive   3. Nutrition intervention plan      1. Introduction to nutrition intervention      2. Steps in developing a nutrition plan      3. Types of nutrition intervention         1. Breast feeding promotion         2. Formula feeding guidelines         3. Complementary feeding introduction         4. Supplementation         5. Dehydration management         6. Allergies and food intolerances management         7. Diet planning         8. Deworming         9. Education and counselling for mothers   4. Carrying out nutrition intervention      1. Introduction to carrying out nutrition intervention      2. Steps in implementing nutrition intervention      3. Tools and resources for implementation   5. Monitoring and evaluating nutrition intervention      1. Introduction to monitoring nutrition intervention      2. Steps in monitoring nutrition intervention      3. Tools and methods for tracking nutrition intervention      4. Growth and development monitoring         1. Anthropometry         2. Biochemical assessment         3. Clinical monitoring         4. Dietary assessment         5. Direct observation         6. Indicators for successful nutrition intervention         7. Challenges in monitoring and evaluating nutrition intervention | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Provide young child nutrition | * 1. Nutritional needs for young child      1. Introduction to nutrition needs for young child      2. Importance of nutrition in young child      3. Assessment of nutritional needs in young children         1. Anthropometry         2. Biochemical assessments         3. Clinical monitoring         4. Dietary assessments            1. Energy needs            2. Macronutrient needs            3. Vitamin A            4. Vitamin D            5. Vitamin C            6. B vitamins            7. Calcium            8. Iron            9. Zinc            10. Fiber            11. Water   2. Young child nutrition related complications      1. Introduction to young child nutrition related complications      2. Common young child nutrition complications         1. Malnutrition         2. Micronutrient deficiency         3. Overnutrition and obesity         4. Food allergies and intolerances         5. Infections and contaminations         6. Developmental delays         7. Dental issues   3. Nutrition intervention plan      1. Introduction to nutrition intervention      2. Steps in developing a nutrition plan      3. Types of nutrition intervention         1. Formula feeding guidelines         2. Complementary feeding introduction         3. Supplementation         4. Breastfeeding promotion         5. Emergency nutrition intervention            1. Therapeutic feeding            2. Disease management (diarrhea, infections)         6. Dehydration management            1. Allergies and food intolerances management            2. Diet planning            3. Deworming            4. Education and counselling   4. Carrying out nutrition intervention      1. Introduction to carrying out nutrition intervention      2. Steps in implementing nutrition intervention      3. Tools and resources for implementation   5. Monitoring and evaluating nutrition intervention      1. Introduction to monitoring nutrition intervention      2. Steps in monitoring nutrition intervention      3. Tools and methods for tracking nutrition intervention      4. Indicators for successful nutrition intervention      5. Challenges in monitoring and evaluating nutrition intervention | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |

**Suggested Methods of Instruction**

* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**RECOMMENDED RESOURCES**

|  |  |  |  |
| --- | --- | --- | --- |
| **Materials** | | | |
| **No** | **Type of material** | **Quantity** | **Ratio** |
| 1 | Internet connection | - | - |
| 2 | Assorted flash cards | - | - |
| 3 | Flip charts | - | - |
| 4 | Whiteboard markers | - | - |
| **Tools and Equipment** | | | |
| 1 | Laptops | 1 | 1:25 |
| 2 | Whiteboards | 1 | 1:25 |
| 3 | Projectors | 1 | 1:25 |
| 4 | Weighing Scale | 5 | 1:5 |
| 5 | Height/Stadiometers | 5 | 1:5 |
| 6 | Measuring Tape | 5 | 1:5 |
| 7 | Calipers | 5 | 1:5 |
| 8 | Body Mass Index (BMI) wheel | 5 | 1:5 |
| 9 | Glucometer | 5 | 1:5 |
| 10 | Blood Pressure Machine | 5 | 1:5 |
| 11 | Food Frequency Questionnaires (FFQs) | 25 | 1:1 |
| 12 | 24-Hour Dietary Recall | 25 | 1:1 |
| 13 | Food Diaries | 25 | 1:1 |
| 15 | Food Models | 5 | 1:5 |
| 16 | Baby dummies | 1 | 1:25 |
| 17 | Breast model | 1 | 1:25 |
| **Personal Protective Equipment** | | | |
| 1 | Dust coat or gown | 25 | 1:1 |
| 2 | Closed shoes | 25 | 1:1 |
| 3 | Gloves | 25 | 1:1 |
| 4 | Face masks | 25 | 1:1 |

**DIETETIC OPERATIONS**

**UNIT CODE: 0915 551 08A**

**UNIT DURATION: 120 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Conduct Dietetic Operations

**Unit Description**

This unit describes competencies required to conduct dietetic operations. It involves assessing client’s mode of feeding, carrying out diet modification, administration of enteral nutrition, parenteral nutrition and prescription of nutrient supplement, functional foods and nutraceuticals, managing drug-nutrient interactions. It also involves managing nutrition in burns.

**Summary of Learning Outcomes**

1. Assess client’s mode of feeding,
2. Carry out diet modification,
3. Administer enteral nutrition,
4. Administer parenteral nutrition,
5. Prescribe nutrient supplement, functional foods and nutraceuticals
6. Manage drug-nutrient interaction
7. Manage Nutrition in Burns

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Assess client’s mode of feeding, | * 1. Assessment of Gastrointestinal Tract (GIT) functionality      1. Introduction to GIT functionality      2. Oral assessment      3. Bowel Habits      4. Abdominal Pain      5. Digestive Symptoms   2. Mode of feeding determination.      1. Oral feeding   1.2.1.1 Oral feeding complications   * + 1. Enteral feeding        1. Feeding routes           1. Nasogastric           2. Nasojejunal           3. Nasodeudenal,           4. Esophagostomy           5. Gastrostomy           6. Jejunostomy   1.2.2.2 Enteral feeding complication   * + 1. Parenteral feeding        1. Peripheral parenteral nutrition (PPN)        2. Central parenteral nutrition        3. Complications of parenteral nutrition   1. Documentation of mode feeding | 12 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Carry out diet modification | * 1. Dietary needs assessment      1. Macronutrients      2. Micronutrients   2. Diet modification      1. Definition of terms         1. Diet         2. Modification      2. Principles of diet modification      3. Factors influencing diet modification      4. Classification of diet modification         1. Quantitative modification         2. Qualitative modification      5. Types of diet modification         1. Low-Calorie Diet         2. High-Protein Diet         3. High protein high calorie diet         4. Low-Carbohydrate Diet         5. Low-Fat Diet         6. Mediterranean Diet.         7. DASH Diet         8. Gluten-Free Diet         9. Dairy-Free Diet      6. Challenges of diet modification   3. Documentation and dissemination of diet modification | 16 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Administer enteral nutrition | * 1. PPEs      1. Types of PPEs         1. Mask         2. Dust coat or gown         3. Closed shoes         4. Gloves         5. Head cover         6. Rubber boots   2. Enteral nutrition routes      1. Indicators of enteral nutrition      2. Mechanical routes         1. Nasogastric (NG) Tube         2. Nasojejunal         3. Nasodeudenal      3. Surgical routes         1. Gastrostomy Tube (G-Tube)         2. Jejunostomy Tube (J-Tube)         3. esophagostomy   3. Enteral nutrition feeds   3.3.1 Standard Formulas:  3.3.1.1 Polymeric Formulas  3.3. 1.2 Elemental Formulas:   * + 1. Specialty Formulas:        1. Fiber-Enriched Formulas        2. Renal Formulas        3. Pulmonary Formulas        4. Diabetes Formulas.   1. Enteral feed administration   3.4.1 Enteral feeding methods  3.4.1.1 continuous drip  3.4.1.2 intermitted  3.4.1.3 bolus   * 1. Monitoring and evaluation of enteral nutrition feeds tolerance   2. Documentation and dissemination of enteral feeds administration | 22 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Administer parenteral nutrition | * 1. Parenteral nutrition routes      1. Indicators of parenteral nutrition      2. Central/Total Venous route      3. Peripheral Venous route   2. Prescription of parenteral formula      1. Parenteral nutrition Formula Composition:         1. Macro nutrients            1. Carbohydrates:            2. Protein            3. Lipids         2. Micronutrients            1. Electrolytes: Sodium, potassium, chloride, calcium, magnesium, and phosphorus            2. Trace Elements: Zinc, copper, manganese, chromium, selenium, molybdenum, and iodine.            3. Vitamins.   3. Administration of parenteral nutrition   4. Complications of parenteral nutrition   4.4.1 Metabolic complications  4.4.2 Physical/mechanical complications   * 1. Documentations and dissemination of parenteral formula administration | 22 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Prescribe nutrient supplement, functional foods and nutraceuticals | * 1. Nutrient supplements, functional foods and nutraceuticals      1. Definition of terms         1. Supplement         2. Functional food         3. Nutraceutical         4. Types of supplements         5. Types of functional foods         6. Types of nutraceuticals   2. Prescription of supplements, functional foods and nutraceuticals.   3. Documentation and dissemination of supplements, functional foods and nutraceuticals prescription. | 10 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Manage drug-nutrient interaction | * 1. Review Medication regimen of client      1. Drug-nutrient interaction      2. Nutrient-nutrient interaction      3. Drug-drug interaction   2. Identification of drug-nutrient interaction is   6.2.1Common Drug-Nutrient Interactions:   * + - 1. Warfarin and Vitamin K-rich foods       2. Antihypertensive medications and potassium-rich food       3. Proton pump inhibitors and vitamin B12 absorption       4. Tetracycline antibiotics and calcium-rich foods   1. Management of Specific drug-nutrient interaction   2. Documentation and dissemination of specific drug-nutrient interaction. | 12 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 7. Manage nutrition in Burns | * 1. Definition of terms   2. Assessment of burn injury      1. Burn injury assessment      2. Nutrition assessment   3. Develop specific diet plan      1. Calculation of specific nutrient requirement.      2. Rule of 9s and Curreri formula   4. Implementation of the diet plan   5. Monitor and document nutrition intervention progress Evaluate nutrition intervention outcome | 26 | * Practical * Project * Written tests * Portfolio of evidence * Oral questioning * Third party report |

**Suggested Methods of Instruction**

* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |
| --- | --- | --- |
| **Tools and Equipment** | **Quantity** | **Ratio** |
| 1. Laptops | 1 | 1:25 |
| 2.Internet connections | - | - |
| 3.Projectors | 1 | 1:25 |
| **Types of Materials** | | |
| 4.Flash cards | 5boxes | 1:5 |
| 5.Whiteboards | 1 | 1:25 |
| 6.Rolls flip charts | 5 | 1:5 |
| 7.Whiteboard markers | 5 | 1:5 |

|  |  |  |
| --- | --- | --- |
| **Personal Protective Equipment** | **Quantity** | **Ratio** |
| 8.Dust coat or gown | 25 | 1:1 |
| 9.Closed shoes | 25 pairs | 1:1 |
| 10.Gloves | 26 pairs | 1:1 |
| 11.Face protection goggles or face shiels | 25 | 1:1 |
| 12.Head cover | 25 | 1:1 |
| **Tools and equipment** | | |
| 13. Nasogastric tubes | 8 | 1:3 |
| 14. Parenteral giving set | 1 | 1:25 |
| 15. Manikin | 2 | 1:12 |
| 16. Parenteral formulas | 1 | 1:25 |
| 17. Parenteral bags | 1 | 1:25 |

# MODULE III

**WORK ETHICS AND PRACTICES**

**UNIT CODE:** **0417 551 09A**

**UNIT DURATION: 40 Hours**

**Relationship with Occupational Standards**

This unit addresses the Unit of Competency: Apply Work Ethics and Practices.

**Unit Description**

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

**Summary of Learning Outcomes**

1. Apply self-management skills
2. Promote ethical practices and values
3. Promote Teamwork
4. Maintain professional and personal development
5. Apply Problem-solving skills
6. Promote Customer care.

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

| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **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      1. Developing and maintaining high self-esteem      2. Developing and maintaining positive self-image      3. Time management      4. Setting performance targets      5. Monitoring and evaluating performance targets | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 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 | 4 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Promote teamwork | * 1. Types of teams   2. Team building      1. Individual responsibilities in a team      2. Determination of team roles and objectives      3. Team parameters and relationships      4. Benefits of teamwork      5. Qualities of a team player      6. Leading a team      7. Team performance and evaluation   3. Conflicts and conflict resolution   4. Gender and diversity mainstreaming   5. Developing Healthy workplace relationships   6. Adaptability and flexibility   7. Coaching and mentoring skills | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 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      1. Assessing training needs      2. Mobilizing training resources   5. Licenses and certifications for professional growth and development   6. Pursuing personal and organizational goals   7. Managing work priorities and commitments   8. Dynamism and on-the-job learning | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 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 | 4 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 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 | 2 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

* Instructor lead facilitation of theory using active learning strategies.
* Demonstrations
* Simulation/Role play
* Group Discussion
* Presentations
* Projects
* Case studies
* Assignments

**Recommended Resources for 25Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/Specifications** | **Quantity** | **Recommended Ratio (Item: Trainee)** |
| **A** | **Learning Materials** | | | |
|  | PowerPoint Presentations | For trainer’s use, covering course content and practical applications | 1 | 1:25 |
|  | Projector | Functional projector for displaying content during presentations | 1 | 1:25 |
|  | Media Resources | This include but are not limited to:   * Video Clips * Audio Clips * TV Sets * Radio Sets |  |  |
|  | White board | Quality whiteboard of approximately 6 ft by 3 ft for writing during theory instruction | 1 | 1:25 |
| **B** | **Learning Facilities & Infrastructure** | | | |
|  | Lecture/Theory Room  /Learning Resource  Area\* | Spacious, equipped with projectors and Seats for 25trainees, approximately 45 sqm (5 m x 9 m) | 1 | 1:25 |
|  | Computer Laboratory | Equipped with at least 25 functional computers with internet connectivity and the following software:   * + - Windows/ Linux/ Macintosh Operating System     - Microsoft Office Software     - Google Workspace Account     - Antivirus Software | 25 | 1:1 |
|  |  |  |  |  |
| **C** | **Consumable Materials** | | |  |
|  | Printing Papers | A4 and A3 Printing papers suitable for the task | Enough |  |
|  | Flashcards | For carrying out various activities by trainees | Enough |  |
|  | Charts | Sufficient for group work activities and displaying | Enough |  |
|  | Whiteboard Marker Pens | Dry-erase markers for trainer’s use. Assorted colors | Enough |  |

**FIRST AID SERVICES**

**UNIT CODE: 0915 551 10A**

**UNIT DESCRIPTION: 60 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Provide First Aid Services. s

**Unit Description**

This unit specifies the competencies required to provide first aid services. It involves assessing the incident environment, assessing nature and extent of accident and performing first aid.

**Summary of Learning Outcomes**

1. Assess incident environment
2. Assess nature and extent of accident
3. Perform first aid

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1.Assess incident environment | 1. Incident environment    * 1. Kitchen      2. Laboratory      3. Classroom      4. Field      5. Recreation areas   1.2 PPEs   * + 1. Mask     2. Dust coat or gown     3. Closed shoes     4. Gloves     5. Kitchen towels     6. Face protection     7. Goggles or face shield     8. Head cover,     9. Rubber boots   1. First Aid methodsand procedures      1. ABCs of life (Airways, Breathing and Circulation)      2. CPR (cardiopulmonary ressucitation)      3. Automated External defibrillator (AED) | 20 | * Practical * Portfolio of Evidence * Oral assessment * Written assessment * Third party report |
| 2.Assess nature and extent of accident | * 1. Casualty safety   2. Nature of injury and /or illness      1. Choking      2. Burns      3. Scalds      4. Trauma      5. Nose bleeding      6. Cuts      7. Fractures      8. Drowning      9. Poisoning      10. Fainting      11. Fever      12. Asthmatic attack      13. Epileptic seizures   3. Extent of accident   2.3.1 Mild  2.3.2 Moderate  2.3.3 Severe   * + 1. Acute     2. Chronic   1. Tools, equipment, materials and supplies.      1. First Aid kit      2. Stretcher      3. Gloves      4. Spine board      5. Sheets      6. Splints      7. Mask      8. Goggles      9. Apron/Gown/coverall/jump s      10. Air ways/ adjuncts      11. Ambu-bag      12. Trolley | 20 | * Practical * Portfolio of Evidence * Oral assessment * Written assessment * Third party report |
| 3.Perform First aid | * 1. First aid procedures   2. Monitoring casualty’s condition      1. Mild      2. Moderate      3. Severe      4. Acute      5. Chronic   3. Casualty progress report      1. Document casualty progress report      2. Disseminate casualty progress report   4. Winding up first aid intervention      1. Remove any hazardous materials      2. Secure equipment and supplies      3. Remove any unnecessary items      4. Reassure the casualty | 20 | * Practical * Portfolio of Evidence * Oral assessment * Written assessment * Third party report |

**Suggested Methods of Instruction**

* Practical
* Demonstration
* Direct instruction
* Role play
* Audio visuals aids

**Recommended Resources for 25 Trainees**

**Materials**

|  |  |  |  |
| --- | --- | --- | --- |
| **S No.** | **Item** | **Quantity** | **Ratio** |
|  | Laptops | 1 | 1:25 |
|  | Projector | 1 | 1:25 |
|  | Assorted flash cards | - | - |
|  | Whiteboard | 1 | 1:25 |
|  | Flip Charts | - | - |
|  | Assorted whiteboard markers | - | - |

**Tools and equipment**

|  |  |  |  |
| --- | --- | --- | --- |
| **S No.** | **Tools** | **Quantity** | **Ratio** |
|  | Blood Glucose Meters | 25 | 1:25 |
|  | Blood Pressure Monitors | 5 | 1:5 |
|  | First aid manual | 5 | 1:5 |
|  | Stretchers | 5 | 1:5 |
|  | Emergency blanket | 5 | 1:5 |
|  | Adhesive bandages | 25 | 1:25 |
|  | **Equipment** |  |  |
|  | First aid kits/box | 25 | 1:1 |
|  | AED | 1 | 1:25 |
|  | Manikins | 5 | 1:5 |

**PPEs**

|  |  |  |  |
| --- | --- | --- | --- |
| **S No.** | **Item** | **Quantity** | **Ratio** |
|  | Dust coat | 25 | 1:1 |
|  | Closed shoes | 25 | 1:1 |
|  | Gloves | 25 | 1:1 |
|  | Face protection Goggles or face shield, gloves | 25 | 1:1 |
|  | Head cover, | 25 | 1:1 |

**MANAGEMENT OF SPECIALIZED MEALS**

**UNIT CODE: 0915 551 11A**

**UNIT DURATION: 160 Hours**

**Unit Description**

This unit specifies the competencies required to manage specialized meals. It includes assessing client’s nutritional needs, preparing client’s diet plan, preparing client’s meal plan and preparing specialized meals.

**Summary of Learning Outcomes**

1. Assess client nutritional needs
2. Prepare client diet plan
3. Prepare client meal plan
4. Prepare specialized meals

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Assess client nutritional needs | * 1. Definition of terms      1. Meal      2. Meal plan      3. Specialized meal      4. Menu      5. Recipe   2. Categories of life stages      1. Pregnancy      2. Infancy      3. Childhood      4. Adolescence      5. Adulthood      6. Elderly   3. Client’s nutrition need      1. Macronutrients   1.3.1.1 carbohydrates  1.3.1.2 Proteins  1.3.1.3Lipids   * + 1. Micronutrients        1. Vitamins        2. Minerals   1. Documentation of client’s nutrition need | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 2.Prepare client’s diet plan | * 1. Development of client’s dietary goal      1. Factors to consider when planning meals         1. Biological determinants         2. Economic and physical determinants         3. Social determinants      2. Quality and quantity control in meal planning   2.2 Diet planning principles  2.2.1 Adequacy  2.2.2 Balance  2.2.3Calorie Control  2.2.4 Density  2.2.5Moderation   * + 1. Variety     2. Diet planning tools.     3. Food composition table     4. Food exchange list     5. Food guide pyramid     6. Reference Standards Mask   1. Development of Client’s diet plan. | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 3.Prepare client meal plan | * 1. Preparing a menu      1. Functions of a menu      2. Factors to consider when preparing a menu      3. Types of menu         1. A la carte         2. Table d’ hote   2. Components of a recipe      1. Dish name      2. Quantity      3. Ingredients      4. Equipment and materials      5. Order list      6. Number of servings      7. Cost   3. Preparing food order list   4. Menu costing   5. Development of work schedule | 56 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 4.Prepare specialized meals | * 1. PPEs for food handling      1. Kitchen gloves      2. Hairnets and caps      3. Aprons      4. Closed flat leather shoes      5. Kitchen towels   2. Preparation of ingredients   3. Production of specialized meal   4. Waste management | 44 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |

**Suggested Methods of Instruction**

* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |
| --- | --- | --- |
| **Item** | **Quantity** | **Ratio** |
| Laptop | 1 | 1:25 |
| Internet connection | - | - |
| Projector | 1 | 1:25 |
| Whiteboard | 1 | 1:25 |
| Flip chart | 1 | 1:25 |
| Whiteboard markers | 1 | 1:25 |

**Tools and Equipment for 25 trainees**

|  |  |  |
| --- | --- | --- |
| **ITEM** | **QUANTITY** | **Ratio** |
| Weighing scale | 5 | 1:5 |
| Refrigerator | 1 | 1:25 |
| Assorted knives | 15 | 1:2 |
| Assorted spoons | 25 | 1:1 |
| Assorted folks | 25 | 1:1 |
| Cooking pots | 15 | 1:2 |
| Cooking pans | 5 | 1:5 |
| Platters | 15 | 1:2 |
| Glasses | 16 | 1:2 |
| Measuring cups | 5 sets | 1:5 |
| Food Exchange list | 5 | 1:5 |
| Food composition table | 5 | 1:5 |
| Food Frequency questionnaire | 5 | 1:5 |
| 24-hour dietary Recall | 5 | 1:5 |
| Food Diaries | 5 | 1:5 |
| Food models and visual Aids | 5 | 1:5 |
| Cooker | 5 | 1:5 |
| **PPEs** | | |
| Dust coat or gown | 25 | 1:1 |
| Closed flat leather shoes | 25 pairs | 1:1 |
| Gloves | 25 pairs | 1:1 |
| Kitchen towels | 25 pairs | 1:1 |
| Head cover | 25 | 1:1 |

**NUTRITION IN COMMUNICABLE AND NON-COMMUNICABLE DISEASES**

**UNIT CODE: 0915 551 12A**

**UNIT DURATION: 140 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Provide nutrition in communicable and non-communicable diseases

**Unit Description**

This unit describes competencies required to provide nutrition in communicable and non-communicable diseases. It involves carrying out client’s dietary assessment, formulating individualized feeding care plan, carrying out feeding care plan interventions and conducting continuous dietary monitoring.

**Summary of Learning Outcomes**

1. Carry out client’s dietary assessment
2. Formulate individualized feeding care plan
3. Carry out feeding care plan interventions
4. Conduct continuous dietary monitoring.

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Carry out client’s dietary need assessment | * 1. PPEs      1. Definition of terms         1. Nutrition         2. Communicable diseases         3. Non communicable diseases      2. Types of PPEs         1. Dust coat         2. Face mask         3. Hand gloves         4. Closed shoes      3. Importance of PPEs   2. Communicable disease      1. The Communicable disease transmission cycle      2. Communicable disease transmission route      3. Types of communicable diseases         1. Oral faecal transmitted disease            1. Cholera   Mode of transmission  Signs and symptoms  Prevention and control  Nutritional management of Cholera   * + - * 1. Typhoid   Mode of transmission  Signs and symptoms  Prevention and control  Nutritional management of typhoid   * + - * 1. Diarrheal diseases   Causative agents  Mode of transmission  Types of diarrhoea  Prevention and control  Nutritional management of diarrheal disease   * + - 1. Air-borne diseases          1. Tuberculosis   Mode of transmission  Types of Tuberculosis  Signs and symptoms  Common complications of Tuberculosis  Prevention and control  Nutritional management of tuberculosis   * + - * 1. Pneumococcal pneumonia   Causes  Mode of transmission  Signs and symptoms  Prevention and control  Nutritional management of tuberculosis   * + - 1. Vector-borne diseases          1. Malaria   Causes  Mode of transmission  Signs and symptoms  Prevention and control  Nutritional management of Malaria   * 1. Non- communicable Diseases      + 1. Rheumatoid arthritis (RA)           1. Causes of RA           2. Effects of RA on the body           3. Signs and symptoms of RA           4. Nutritional management of RA        2. Osteoarthritis           1. Causes of Osteoarthritis           2. Signs and symptoms of Osteoarthritis           3. Nutritional management of Osteoarthritis        3. Gout           1. Signs and symptoms of Gout           2. Causes of Gout           3. Risk factors of Gout           4. Complications of Gout           5. Nutritional management of Gout        4. Osteoporosis           1. Causes of Osteoporosis           2. Signs and symptoms of Osteoporosis           3. Nutritional management of Osteoporosis        5. Obesity           1. Causes of Obesity           2. Risk factors of Obesity           3. Complications of Obesity           4. Nutritional management of Obesity        6. Diabetes           1. Types of diabetes           2. Signs and symptoms of diabetes           3. Causes of diabetes           4. Risk factors of diabetes           5. Complications of diabetes           6. Component of diabetes management plan           7. Nutritional management of diabetes        7. Cancer           1. Types of cancer           2. Types of cancer treatment           3. Side effects of cancer treatment           4. Nutritional management of Cancer        8. Blood pressure           1. Types of blood pressure           2. Risk factors of High blood pressure           3. Complications of blood pressure           4. Nutritional management of High blood pressure        9. Heart disease           1. Types of heart diseases           2. Causes of heart disease           3. Risk factors of heart disease           4. Nutritional management of heart diseases   2. Nutrition diagnostic statement for the client      1. Problem      2. Etiology      3. Signs and symptoms | 50 | * Practical * Project * Portfolio of Evidence * Oral questions * Written assessment * Third party report |
| 1. Formulate individualized feeding care plan | * 1. Nutritional need      1. Caloric needs      2. Micronutrient needs      3. Macronutrient needs   2. Development of specific feeding care plan      1. Factors to consider when developing specific feeding care plan      2. Steps of developing specific feeding care plan      3. Types of specific feeding care plan         1. Supplementation         2. Nutrition education and counselling         3. Fortification         4. Diet modification   3. Collaborative care between nutritionist and other healthcare experts      1. Roles of nutrition support professional         1. Physician         2. Nurses         3. Pharmacist         4. Dietician   4. Documentation of Individualized care plan | 36 | * Practical * Project * Portfolio of Evidence * Oral questions * Written assessment * Third party report |
| 1. Carry out feeding care plan interventions | * 1. Dietary counselling      1. Dietary counselling in communicable diseases         1. Nutrition education and counselling         2. Supplementation         3. Fortification         4. Diet modification      2. Dietary counselling in non-communicable diseases         1. Nutrition education         2. Supplementation         3. Fortification         4. Diet modification   2. Safe food handling procedures      1. Importance of safe food handling procedures         1. Personal hygiene         2. Food storage         3. Individualized food preparation         4. Serving and consumption      2. Types of safe food handling procedures   3. Documentation of Client feeding plan intervention | 24 | * Practical * Project * Portfolio of Evidence * Oral questions * Written assessment * Third party report |
| 1. Conduct continuous dietary monitoring. | * 1. Reassessment of the client medical and nutritional status   2. Reintervention   3. Report dissemination   4. Nutritional management, discharge and referrals | 30 | * Practical * Project * Portfolio of Evidence * Oral questions * Written assessment * Third party report |

**Suggested Methods of Instruction**

* Demonstration
* Practical
* Discussions
* Direct instruction
* Simulation

**Recommended Resources for 25 Trainees**

|  |  |  |
| --- | --- | --- |
| **MATERIALS** | | |
| **Type of material** | **Quantity** | **Ratio** |
| * + - 1. Flip charts | - | - |
| * + - 1. Whiteboard marker | - | - |
| **TOOLS AND EQUIPMENT** | | |
| 1. White board | 1 | 1:25 |
| 1. Laptop | 1 | 1:25 |
| 1. Projector | 1 | 1:25 |
| 1. Weighing Scale | 5 | 1:5 |
| 1. Height board | 5 | 1:5 |
| 1. Length board | 5 | 1:5 |
| 1. Measuring Tape | 5 | 1:5 |
| 1. MUAC tape | 25 | 1:1 |
| 1. Skin fold thinness callipers | 5 | 1:5 |
| 1. Body Mass Index (BMI) wheel | 5 | 1:5 |
| 1. Food Frequency Questionnaires (FFQs) | 5 | 1:5 |
| 1. 24-Hour Dietary Recall | 5 | 1:5 |
| 1. Food Diaries | 5 | 1:5 |
| 1. Food Models and Visual Aids | 5 | 1:5 |
| **PERSONAL PROTECTIVE EQUIPMENT(PPEs)** | | |
| 1. Dust coat | 25 | 1:1 |
| 1. Closed leather shoes | 25 | 1:1 |

# MODULE IV

**ENTREPRENEURIAL SKILLS**

**UNIT CODE: 0413 551 13A**

**UNIT DURATION: 40 HOURS**

**Relationship with occupational standards**

This unit addresses the unit of competency: Apply Entrepreneurial Skills.

This unit covers the competencies required to demonstrate an understanding of entrepreneurship. It involves demonstrating an understanding of financial literacy, applying entrepreneurial concepts identifying entrepreneurship opportunities, applying business legal aspects, and developing business innovative strategies and business plans.

**Summary of Learning Outcomes**

1. Apply financial literacy
2. Apply the entrepreneurial concept
3. Identify entrepreneurship opportunities
4. Apply business legal aspects
5. Innovate Business Strategies
6. Develop business plan

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

| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| --- | --- | --- | --- |
| 1. Apply financial literacy | * 1. Personal finance management   2. Balancing between needs and wants   3. Budget Preparation   4. Saving management   5. Factors to consider when deciding where to save   6. Debt management   7. Factors to consider before taking a loan   8. Investment decisions   9. Types of investments   10. Factors to consider when investing money   11. Insurance services   12. insurance products available in the market   13. Insurable risks | 6 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply entrepreneurial concept | * 1. Difference between Entrepreneurs and Business persons   2. Types of entrepreneurs   3. Ways of becoming an entrepreneur   4. Characteristics of Entrepreneurs   5. salaried employment and self-employment   6. Requirements for entry into self-employment   7. Roles of an Entrepreneur in an enterprise   8. Contributions of Entrepreneurship | 4 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Identify entrepreneurship opportunities | * 1. Sources of business ideas   2. Factors to consider when evaluating business opportunity   3. Business life cycle | 6 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply business legal aspects | * 1. Forms of business ownership   2. Business registration and licensing processing   3. Types of contracts and agreements   4. Employment laws   5. Taxation laws | 6 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Innovate business Strategies | * 1. Creativity in business   2. Innovative business strategies   3. Entrepreneurial Linkages   4. ICT in business growth and development | 6 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Develop Business Plan | * 1. Business description   2. Marketing plan   3. Organizational/Management   4. plan   5. Production/operation plan   6. Financial plan   7. Executive summary   8. Business plan presentation   9. Business idea incubation | 12 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

* Direct instruction with active learning strategies
* Project (Business plan)
* Case studies
* Field trips
* Group Discussions
* Demonstration
* Question and answer
* Problem solving
* Experiential
* Team training
* Guest speakers

**Recommended Resources for 25Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/Specifications** | **Quantity** | **Recommended Ratio (Item: Trainee)** |
| **A** | **Learning Materials** |  |  |  |
|  | PowerPoint Presentations | For trainer’s use, covering course content and practical applications | 1 | 1:25 |
|  | Projector | Functional projector for displaying content during presentations | 1 | 1:25 |
|  | Media Resources | These include but are not limited to:   * Video Clips * Audio Clips * TV Sets * Radio Sets * Newspapers * Business Journals * Case studies |  |  |
|  | Templates | Templates for creating various documents e.g. business plan, invoices etc. | 25 | 1:1 |
|  | White board | Quality whiteboard of approximately 6 ft by 3 ft for writing during theory instruction | 1 | 1:25 |
| **B** | **Learning Facilities & Infrastructure** |  |  |  |
|  | Lecture/Theory Room  /Learning Resource  Area\* | Spacious, equipped with projectors and Seats for 25trainees, approximately 45 sqm (5 m x 9 m) | 1 | 1:25 |
|  | Computer Laboratory | Equipped with at least 15 functional computers with internet connectivity and the following software:   * + - Windows/ Linux/ Macintosh Operating System     - Microsoft Office Software     - Google Workspace Account     - Antivirus Software | 1 | 1:1 |
|  |  |  |  |  |
| **C** | **Consumable Materials** |  |  |  |
|  | Writing Materials | Writing materials for note taking | Enough |  |
|  | Flashcards | For carrying out various activities by trainees | Enough |  |
|  | Charts | Sufficient for group work activities and displaying | Enough |  |
|  | Whiteboard Marker Pens | Dry-erase markers for trainers use. Assorted colours | Enough |  |

**PRINCIPLES OF FOOD PROCESSING AND PRESERVATION**

**UNIT CODE: 0721 551 14A**

**UNIT DURATION: 100 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Principles of Food Processing and Preservation.

**Unit Description**

This unit describes competencies required to apply principles of food processing, preservation, safety and hygiene. It involves applying food processing, applying principles of food preservation, applying knowledge of food micro-organisms and applying food quality, safety and hygiene.

**Summary of Learning Outcomes**

1. Apply principles of food processing

2. Apply principles of food preservation

3. Apply knowledge of food micro-organisms

4. Apply knowledge in food quality, safety, and hygiene

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

| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| --- | --- | --- | --- |
| * 1. Apply principles of food processing | * 1. Definition of terms      1. Food      2. Processing      3. Food processing      4. Food preservation.      5. Food safety and hygiene   2. Importance of food processing   3. Importance of food preservation   4. Importance of food safety and hygiene   5. Principles of food processing      1. Prevention of microbial growth      2. Control of enzyme activity      3. Oxygen control      4. Moisture control      5. Use of preservatives   6. Factors causing food deterioration/Spoilage   7. Routes of microbial contamination of food   8. Methods of food processing      1. Mechanical methods      2. Thermal processing      3. Freezing and refrigeration   9. Effects of food processing on food and nutrition quality | 20 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| * 1. Apply principles of food preservation. | * 1. Principles of food preservation      1. Controlling of micro-organisms      2. Controlling self-decomposition.      3. Preventing or delaying chemical reactions of the food      4. Controlling insects, rodents, birds, and other physical cause of food spoilage   2. Methods of food preservation      1. Traditional         1. Sun drying         2. Salting         3. Smoking      2. Modern         1. Thermal processing            1. Pasteurization            2. Sterilization.            3. Blanching            4. Canning         2. Low temperature preservation            1. Freezing            2. Refrigeration            3. Chilling         3. Fermentation         4. Food packaging   3. Effects of food preservation techniques on food and nutrition quality | 20 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 3. Apply knowledge of food microorganisms | * 1. Food micro- organisms      1. Definition of terms         1. Microorganisms         2. Food microorganisms      2. Types of food microorganisms         1. Bacteria         2. Mould         3. Yeast      3. Factors affecting the growth of microorganisms in foods.   2. Significance of food micro- organisms   3. Analysis of food micro- organism   4. Ways of controlling food micro- organism control | 30 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 4. Apply knowledge of food quality safety and hygiene | * 1. Food quality control   2. Food safety, and hygiene practices      1. Pest control      2. Personal hygiene      3. Safe food storage   3. Hazard Analysis and Critical Control Point (HACCP) Principles      1. Hazard analysis      2. Critical control point Identifications      3. Establishment of critical limit      4. Monitoring procedures      5. Corrective actions      6. Record keeping      7. Verification procedures   4. Emerging issues in food safety      1. Food biotechnology      2. Food bioterrorism      3. Sustainable packaging | 30 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Delivery**

* Demonstration
* Practical
* Discussions
* Direct instruction
* Roleplay

**Recommended Resources for 25 Trainees**

**Materials**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Type of material** | **Quantity** | **Ratio** |
|  | Flip charts | - | - |
|  | Whiteboard marker | - | - |

**Tools and Equipment**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Item** | **Quantity** | **Ratio** |
| **1.** | White board | 1 | 1:25 |
| **2.** | Laptop | 1 | 1:25 |
| **3.** | Projector | 1 | 1:25 |
| **4** | Freezer | 1 | 1:25 |
| **5** | Refrigerator | 1 | 1:25 |
| **7** | Blender | 5 | 1:5 |
| **8** | Pestle and mortar | 5 | 1:5 |
| **9** | Chopping boards | 5 | 1:5 |
| **10** | Food items | - | - |
| **11** | Dough mixer | 5 | 1:5 |
| **12** | Kitchen weighing scale | 5 | 1:5 |
| **13** | Waste disposal containers | 5 | 1:5 |
| **14** | Stopwatch | 5 | 1:5 |
| **15** | First aid kit | 1 | 1:5 |
| **16** | Air oven | 5 | 1:5 |

**PPEs**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Item** | **Quantity** | **Ratio** |
|  | Dust coat | 25 | 1:1 |
|  | Closed shoes | 25 | 1:1 |
|  | Gloves | 25 | 1:1 |

**MANAGEMENT MALNUTRITION CASES**

**UNIT CODE: 0915 551 15A**

**UNIT DURATION: 100 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Manage Malnutrition Cases

**Unit Description**

This unit describes competencies required to manage malnutrition cases. It involves conducting nutrition assessment, enrolling malnourished client, performing nutrition intervention and evaluating nutrition intervention.

**Summary of Learning Outcomes**

1. Conduct nutrition assessment
2. Enroll malnourished client
3. Perform nutrition intervention
4. Evaluate nutrition intervention

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Conduct nutrition assessment | * 1. Overview of malnutrition      1. Definition of terms         1. Malnutrition         2. Malnutrition management         3. Nutrition         4. Nutrition Status         5. Therapeutic feeds         6. Supplementary feeds      2. Types of malnutrition         1. Acute         2. Chronic         3. Under nutrition         4. Over nutrition      3. Causes of Malnutrition         1. Basic         2. Underlying         3. Immediate      4. PPEs         1. Mask         2. Dust coat or gown         3. Closed shoes         4. Gloves   2. Anthropometric data      1. Weight      2. Height/length      3. MUAC      4. Head circumference      5. Hip circumference      6. Waist circumference      7. Skinfold thickness   3. Biochemical markers      1. Mean cell volume (MCV)      2. Haemoglobin (HB)      3. Random blood sugar (RBS)/Fasting blood sugar (FBS)      4. UREA      5. Na+      6. K+      7. Ca2+   4. Clinical signs and symptoms      1. Palour      2. Hair colour/texture      3. Sunken Eyes      4. Edema      5. Ambulation      6. Bleeding gums   5. Dietary assessment      1. 24hr Recall      2. Food Frequency Questionnaire      3. Food Records/history      4. Dietary diversity score   1.6 Socioeconomic and environmental factors | 32 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Enroll malnourished client | * 1. Admission criteria      1. Inpatient admission criteria      2. Outpatient admission criteria   2. Treatment protocol      1. Inpatient Treatment protocol      2. Inpatient Treatment protocol   3. Documentation of enrolment | 12 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Perform nutrition intervention | 1. Nutrition interventions    * 1. Deworming      2. Supplementation      3. Nutrition education and counselling      4. Food fortification      5. Diet planning      6. Feeding programs    1. Nutrition intervention plan development    2. Carrying out of Nutrition intervention    3. Nutrition intervention documentation       1. Outpatient registers       2. Inpatient registers | 28 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Evaluate nutrition intervention | * 1. Nutrition intervention outcome monitoring   2. Nutrition outcome measurement   3. Specific nutrition intervention outcomes evaluation   4. Nutrition intervention evaluation report preparation   5. Discharge criteria | 28 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |

**Suggested Methods of Instruction**

* Projects
* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**RECOMMENDED RESOURCES**

|  |  |  |  |
| --- | --- | --- | --- |
| **Materials** | | | |
| **No** | **Type of material** | **Quantity** | **Ratio** |
| 1 | Internet connection | - | - |
| 2 | Assorted flash cards | - | - |
| 3 | Flip charts | - | - |
| 4 | Whiteboard markers | - | - |
| **Tools and Equipment** | | | |
| 1 | Laptops | 1 | 1:25 |
| 2 | Whiteboards | 1 | 1:25 |
| 3 | Projectors | 1 | 1:25 |
| 4 | Weighing Scale | 13 | 1:2 |
| 5 | Height/Stadiometers | 13 | 1:2 |
| 6 | Measuring Tape | 13 | 1:2 |
| 7 | Calipers | 13 | 1:2 |
| 8 | Body Mass Index (BMI) wheel | 13 | 1:2 |
| 9 | Glucometer | 5 | 1:5 |
| 10 | Blood Pressure Machine | 5 | 1:5 |
| 11 | Food Frequency Questionnaires (FFQs) | 25 | 1:1 |
| 12 | 24-Hour Dietary Recall | 25 | 1:1 |
| 13 | Food Diaries | 25 | 1:1 |
| 14 | Electronic Health Records (EHRs) | 5 | 1:5 |
| 15 | Food Models and Visual Aids | 5 sets | 1:5 |
| **Personal Protective Equipment** | | | |
| 1 | Dust coat or gown | 25 | 1:1 |
| 2 | Closed shoes | 25 | 1:1 |
| 3 | Gloves | 25 | 1:1 |
| 4 | Face masks | 25 | 1:1 |

**NUTRITION EDUCATION AND COUNSELLING**

**UNIT CODE: 0915 551 16A**

**UNIT DURATION: 100 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Conduct Nutrition Education and Counselling

**Unit Description**

This unit standard specifies the competencies required to conduct nutrition education and counselling. It involves carrying out nutrition need assessment, preparing nutrition education and counselling plan, conducting nutrition education and counselling session and evaluating nutrition education and counselling session.

**Summary of Learning Outcomes**

1. Carry out nutrition need assessment
2. Prepare nutrition education and counselling plan
3. Conduct nutrition education and counseling session
4. Evaluate nutrition education and counselling session

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Carry Out Nutrition Need Assessment | * 1. Definition of terms      1. Nutrition education      2. Nutrition counselling   2. Nutrition needs assessment tools      1. Checklists      2. Questionnaires      3. Interview guides/forms      4. Nutrition assessment tools   3. Create Rapport   4. Gather relevant information   5. Nutritional diagnosis      1. Problem      2. Etiology      3. Signs and symptoms   6. Documentation and dissemination of need assessment report | 28 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Prepare nutrition education and counselling plan | * 1. Nutrition education and counselling objectives   2. Teaching methodologies/Counselling techniques      1. Clarification      2. Encouraging      3. Listening skills      4. Self-disclosure      5. Paraphrasing   3. Resource allocation   4. Preparation of action plan | 26 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Conduct nutrition education and counselling session | 1. Nutrition education and counselling environment 2. Create rapport 3. Nutrition education and counselling session 4. Documentation and dissemination of nutrition education and counselling session | 26 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Evaluate nutrition education and counselling session | 1. Developing evaluation tools    * 1. Performance indicators      2. Formal surveys      3. Participatory methods      4. Public expenditure tracking surveys    1. Identifying performance indicators       1. Nutrition status       2. Dietary assessments       3. Routine visits to clients       4. Anthropometric indicators    2. Nutrition education and counselling outcome    3. Nutrition education and counselling session evaluation | 20 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |

**Suggested Methods of Instruction**

* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| **S No.** | **Item** | **Quantity** | **Ratio** |
|  | Laptops | 1 | 1:25 |
|  | Projector | 1 | 1:25 |
|  | Whiteboard | 1 | 1:25 |
|  | Flip Charts | - | - |
|  | Assorted whiteboard markers | - | - |

**Tools and equipment**

|  |  |  |  |
| --- | --- | --- | --- |
| **S No.** | **Tools** | **Quantity** | **Ratio** |
|  | Blood Glucose Meters | 5 | 1:5 |
|  | Blood Pressure Monitors | 5 | 1:5 |
|  | Body Mass Index (BMI) Calculator | 5 | 1:5 |
|  | Food Frequency Questionnaires (FFQs) | 25 | 1:1 |
|  | 24-Hour Dietary Recall | 25 | 1:1 |
|  | Food Diaries | 25 | 1:1 |
|  | Assorted Food Models and Visual Aids | 5 | 1:5 |
| **Equipment** | | | |
|  | First aid kits/box | 1 | 1:25 |
|  | Weighing Scale | 5 | 1:5 |
|  | Height/Stadiometers | 5 | 1:5 |
|  | Measuring Tape | 5 | 1:5 |
|  | Calipers | 5 | 1:5 |

**PPEs**

|  |  |  |  |
| --- | --- | --- | --- |
| **S No.** | **Item** | **Quantity (per trainee)** |  |
|  | Dust coat | 25 | 1:1 |
|  | Closed shoes | 25 pairs | 1:1 |

# MODULE V

**NUTRITIONAL BIOCHEMISTRY**

**UNIT CODE: 0915 551 17A**

**UNIT DURATION: 80 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Nutritional Biochemistry

**Unit Description**

This unit describes competencies required to apply knowledge of nutritional biochemistry. It involves applying macro and micro molecules, applying enzymes and hormones, and applying nutrient metabolism.

**Summary of Learning Outcomes**

1. Apply knowledge of macro and micro molecules
2. Apply knowledge of enzymes and hormones
3. Apply knowledge of nutrient metabolism

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Apply knowledge of macro and micro molecules | * 1. Types of macro molecules      1. Role of biochemistry in energy provision and substance synthesis      2. Carbohydrates      3. Proteins      4. Lipids      5. Nucleic acids   2. Types of micro molecules      1. Vitamins      2. Minerals   3. Structure and functions of Deoxyribonucleic acid (DNA) and Ribonucleic Acid (RNA)   4. Process of DNA replication   5. Process of DNA transcription | 28 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of enzymes and hormones | 2.1. Enzymes   * + 1. Transferases     2. Oxidoreductases     3. Hydrolase   1. Structure and properties of enzymes   2. Co-enzymes and co-factors      1. Magnesium      2. Copper      3. NAD      4. NADH      5. FAD   3. Enzymes mechanisms   4. Hormones      1. Role of hormones in metabolism regulation      2. Progesterone      3. Oestrogen      4. Insulin      5. Progesterone      6. Testosterone | 28 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of nutrient metabolism | * 1. Carbohydrate metabolism      1. Hormonal control of carbohydrate metabolism      2. Glycogenolysis      3. Glycolysis pathway      4. Gluconeogenesis pathway      5. Citric acid/ Kreb’s/TCA cycle   2. Protein metabolism      1. Protein digestion and absorption      2. Amino acid transport and distribution      3. Protein synthesis      4. Protein catabolism (Glucose Alanine cycle, deamination)      5. Nitrogen excretion (urea cycle)   3. Lipid metabolism      1. Functions of lipids      2. Building blocks of lipids      3. Classifications of lipids      4. Lipid derivatives      5. Fat metabolism | 24 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |
| --- | --- | --- |
| **Materials** | | |
| **Item** | **Quantity** | **Ratio** |
| Flip charts | - | - |
| White board marker pens | - | - |
| **Tools and equipment** | | |
| Laptop | 2 | 1:13 |
| Projector | 1 | 1:25 |
| Whiteboards | 2 | 1:13 |
| Internet connection | - | - |
| Metabolic pathway flowchart | 5 | 1:5 |

|  |  |  |
| --- | --- | --- |
| **Personal Protective Equipment** | | |
| Dust coat | 25 | 1:1 |
| Closed shoes | 25 | 1:1 |
| Gloves | 25 | 1:1 |
| Face masks | 25 | 1:1 |
| Head cover | 25 | 1:1 |
| Rubber boots | 25 | 1:1 |

**NUTRITIONAL EPIDEMIOLOGY**

**UNIT CODE: 0915 551 18A**

**UNIT DURATION: 80 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Epidemiology in Nutrition and Dietetics

**Unit Description**

This unit describes competencies required to apply epidemiology in nutrition and dietetics. It involves, applying epidemiological concepts, carrying out disease surveillance, conducting population screening, determining measures of epidemiology and conducting epidemiological research.

**Summary of Learning Outcomes**

1. Apply epidemiological concepts
2. Carry out disease surveillance
3. Conduct population Screening
4. Determine measures of epidemiology
5. Conduct epidemiological research

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Apply epidemiological concepts | 1. Key concepts in epidemiology.    * 1. Definition of terms.         1. Epidemiology.         2. Nutrition epidemiology         3. Disease occurrence         4. Endemic         5. Epidemic         6. Pandemic         7. Population at risk    1. History and scope of epidemiology.       1. History of epidemiology       2. Scope of epidemiology       3. Fundamental assumptions.    2. Goals of epidemiology.       1. General goal of epidemiology       2. Specific goals of epidemiology    3. Epidemiological diseases.       1. Communicable diseases       2. Occupational diseases       3. Acute diseases       4. Chronic diseases       5. Nutritional deficiencies | 10 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Carry out Disease surveillance | * 1. Disease surveillance system.      1. Planning diseases surveillance system.      2. Types of surveillance      3. Methods of data collection   2. Disease case identification.      1. Outbreak confirmation      2. Case definition.      3. Case findings      4. Preparing a disease surveillance report.      5. Dissemination of disease surveillance report   3. Epidemiological triad in outbreak.      1. Epidemiological triad      2. Disease investigation and management         1. types of epidemics         2. Levels of disease occurrence         3. Investigation of an epidemic      3. Disease risk factors.   4. Disease progression.      1. Natural History         1. Stage of susceptibility         2. Stage of pre-symptomatic.         3. Stage of symptomatic         4. Stage of disease outcome   5. Disease occurrence report | 12 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Conduct Population Screening | * 1. Population needs assessment      1. Common diseases screening      2. Goals of screening      3. Importance of screening      4. Instruments for screening      5. Types of screening      6. Factors to consider population screening plan   2. Population screening plan      1. population screening plan development   3. Community engagement is conducted as per disease management procedures      1. Importance of community engagement      2. Community engagement strategies   4. Population screening is carried out as per Ministry of health (MoH) guidelines      1. Methods of data collection   5. Follow-up and referral report      1. Prepare screening report      2. Disseminate screening report | 18 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Determine measures of epidemiology | 4.1 Morbidity measures  4.1.1 Types of morbidity measures  4.1.2 Importance of morbidity measures  4.1.3 Sources of morbidity data   * 1. Mortality measures      1. Types of mortality measures      2. Importance of mortality measures      3. Sources of mortality data   2. Fertility measures      1. Types of fertility measures      2. Importance of fertility measures      3. Sources of fertility data   3. Association measures      1. Calculate ratio measures of effects      2. Calculate difference measures of effects      3. Calculate stratum-specific measures of effect | 16 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Conduct Epidemiological Research | * 1. Epidemiological research problem   5.1.1 Identification of research problem   * 1. Epidemiological study designs   5.2.1 Types of study designs   * 1. Study population   5.3.1 Methods of determining study population   * 1. Data collection   5.4*.*1 methods of data collections  5.4.1.1 Observation  5.4.1.2 Interviews  5.4.1.3 Focused group discussions (FGDs)  5.4.1.4 Questionnaires   * 1. Data analysis   5.5.1 Methods of data analysis  5.6 Epidemiological research report | 24 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

* Demonstration
* Practical
* Discussions
* Direct instruction

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| **Materials** | | | |
| **No** | **Type of material** | **Quantity** | **Ratio** |
| 1 | Internet connection | - | - |
| 3 | Flip charts | - | - |
| 4 | Whiteboard markers | - | - |
| **Tools and Equipment** | | | |
| 1 | Laptops | 1 | 1:25 |
| 2 | Whiteboards | 1 | 1:25 |
| 3 | Projectors | 1 | 1:25 |
| 4 | Weighing Scale | 5 | 1:5 |
| 5 | Height/Stadiometers | 5 | 1:5 |
| 6 | Measuring Tape | 5 | 1:5 |
| 7 | Calipers | 5 | 1:5 |
| 8 | Body Mass Index (BMI) wheel | 5 | 1:5 |
| 9 | Glucometer | 5 | 1:5 |
| 10 | Blood Pressure Machine | 5 | 1:5 |
| 11 | Food Frequency Questionnaires (FFQs) | 25 | 1:1 |
| 12 | 24-Hour Dietary Recall | 25 | 1:1 |
| 13 | Food Diaries | 25 | 1:1 |
| 15 | Food Models | 5 | 1:5 |
| 16 | MUAC Tapes | 13 | 1:2 |
| 17 | Scientific calculator | 25 | 1:1 |
| **Personal Protective Equipment** | | | |
| 1 | Dust coat | 25 | 1:1 |
| 2 | Closed shoes | 25 | 1:1 |
| 3 | Gloves | 25 | 1:1 |
| 4 | Face masks | 25 | 1:1 |
| 5 | Protection goggles or face shield | 25 | 1:1 |
| 6 | Head cover, | 25 | 1:1 |
| 7 | Rubber boots | 25 | 1:1 |

**NUTRITION IN EMERGENCY**

**UNIT CODE:** **0915 551 19A**

**UNIT DURATION: 100 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Provide Nutrition in Emergency.

**Unit Description**

This unit describes competencies required to provide nutrition in emergence. It involves undertaking rapid nutrition assessment, planning and implementing emergency intervention and providing rehabilitation programs.

**Summary of Learning Outcomes**

1. Undertake rapid nutrition assessment
2. Plan emergency nutrition intervention
3. Implement emergency nutrition intervention
4. Provide rehabilitation program

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Undertake rapid nutrition assessment | * 1. Basic nutrition emergency concepts.      1. Definition of terms      2. Rapid assessment      3. Emergency      4. Disaster      5. Nutrition in emergency      6. Complex emergency         1. Types of disasters         2. Natural disasters         3. Man-made disasters         4. Impact of disasters            1. Impact on population            2. Impact on households            3. Impact on individual      7. Vulnerable groups in nutrition emergencies.         1. Physiological vulnerability.         2. Geographical vulnerability.         3. Political vulnerability.   2. Personal protective equipment      1. Mask      2. Gloves      3. Dust coat   3. Key Components of nutrition screening in emergency.      1. MUAC      2. Weight      3. Height      4. BMI      5. Waist hip ratio      6. Clinical assessment.   1.4 Documentation of nutrition status | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 2. Plan emergency nutrition intervention | 1. Prioritizing nutrition intervention.    * 1. Types of interventions         1. Nutrition counselling.         2. Nutrition education         3. Food and/or nutrient delivery         4. Food programs      2. Urgency      3. Impact      4. Available resources    1. Planning nutrition intervention       1. Identification of intervention goals for each diagnosis.    2. Documentation of nutrition intervention plan | 20 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 3. Implement emergency nutrition intervention | 1. Nutrition intervention    * 1. Nutrition counselling.      2. Nutrition education      3. Food and/or nutrient delivery      4. Food programs    1. Monitoring and evaluation of nutrition in emergency interventions | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 4. Provide rehabilitation programs | * 1. Rehabilitation programs      1. Introduction      2. Types of rehabilitative programme         1. Protective programmes            1. Food distribution         2. Promotive programmes            1. Farm inputs   2. Rehabilitative needs      + 1. Supplementing feeding        2. Dietary counseling        3. Psychosocial support        4. Medical and clinical support      1. Implementation of rehabilitation programs   3. Monitoring and evaluation of rehabilitative program | 40 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Instruction**

* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |
| --- | --- | --- |
| **MATERIALS** | | |
| **Type of material** | **Quantity** | **Ratio** |
| 1. Flip charts | 5 | 1:5 |
| 1. Mother child booklet | 25 | 1:1 |
| 1. Z-Score charts | 5 | 1:5 |
| 1. Food Models and Visual Aids | 5 | 1:5 |
| **TOOLS AND EQUIPMENTS** | | |
| 1. White board | 1 | 1:25 |
| 1. Laptop | 1 | 1:25 |
| 1. Projector | 1 | 1:25 |
| 1. Weighing Scale | 5 | 1:5 |
| 1. Height/Length board | 5 | 1:5 |
| 1. Stadiometers | 5 | 1:5 |
| 1. MUAC Tape | 12 | 1:2 |
| 1. Body Mass Index (BMI) Calculator | 5 | 1:5 |
| 1. Blood Glucose Meters | 5 | 1:5 |
| 1. Blood Pressure Monitors | 5 | 1:5 |
| 1. Electronic Health Records (EHRs) | 5 | 1:25 |
| **PPEs** | | |
| 1. Dust coat | 25 | 1:1 |
| 1. Masks | 25 | 1:1 |
| 1. Gloves | 25 pairs | 1:1 |

**DIET THERAPY IN SYSTEMIC DISORDERS**

**UNIT CODE: 0915 551 20A**

**UNIT DURATION: 120 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Provide diet therapy in systemic disorders

**Unit Description**

This unit describes competencies required to Provide Diet Therapy in Systemic Disorders. It includes assessing systemic disorders of client, formulating individualized feeding care plan, carrying out feeding care plan intervention and conducting continuous dietary monitoring

**Summary of Learning Outcomes**

1. Asses systemic disorder client
2. Formulate individualized feeding care plan
3. Carry out feeding care plan interventions
4. Conduct continuous dietary monitoring

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Asses systemic disorder client | 1,1 Definition of terms   * + 1. Nutrition     2. Therapeutic diet     3. Diet modification     4. Normal diet     5. Nutrition care     6. Diet therapy   1. PPEs      1. Introduction to PPES      2. Types of PPES      3. Importance of PPES   2. Systemic disorders.      1. Digestive disorders         1. GIT disorders         2. Pancreatic disorders         3. Liver diseases         4. Gallbladder disorders      2. Febrile disorders         1. Malaria         2. Typhoid         3. Tuberculosis         4. Human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS)   3. Methods of Dietary assessment      1. 24 Hour dietary recall      2. Food frequency questionnaire      3. Diet history      4. Dietary diversity score   4. Nutrition diagnosis.      1. Problem identification of systemic disorders      2. Etiology identification of systemic disorders      3. Signs and symptoms of systemic disorders   5. Nutrition diagnostic statement.      1. Formulation of PES statement.      2. Documentation of PES statement | 46 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 2.Formulate individualized feeding care plan | * 1. Nutrition needs for systemic disorders.      1. Total caloric need      2. Macronutrient needs      3. Micronutrient needs      4. Setting Nutritional goals for systemic disorders.      5. Specific nutritional requirements for systemic disorders.   2. Development of feeding plan for systemic disorders      1. Designing customized feeding plan      2. Dietary modification for systemic disorders   3. Collaborative care between nutritionist and other healthcare experts      1. Role of nutrition support professional         1. Dietician         2. Nurses         3. Physician         4. Pharmacist   4. Documentation of the feeding plan for the systemic disorders | 28 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 3.Carry out feeding care plan interventions | * 1. Client dietary counselling in systemic disorders      1. Diet planning tools      2. Social behavior      3. Food habits   2. Safe food handling procedures      1. Personal hygiene      2. Food storage      3. Individualized food preparation      4. Serving and consumption   3. Feeding route      1. Oral feeding      2. Enteral feeding      3. Parenteral feeding | 26 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Conduct continuous dietary monitoring | * 1. Reassessment of a client in systemic disorder   2. Necessary reintervention      1. Review of previous data      2. Review of goals      3. Redesign a diet plan      4. Referral         1. Referrals of a client with systemic disorder         2. Factors to consider when referring a client with a systemic disorder         3. Documentation of the redesigned diet plan | 20 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |

**Suggested Methods of Instruction**

* Projects
* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| **MATERIALS** | | | |
| Types of materials | | Quantity | Ratio |
| Laptops | | 2 | 1:13 |
| Internet connection | | - | - |
| 1 Projectors | | 1 | 1:25 |
| Flash cards (boxes) | | 2 | 1:13 |
| Whiteboards | | 2 | 1:13 |
| Rolls Flip charts | | 10 | 1:3 |
| whiteboard markers pens | | 5 | 1:5 |
| **TOOLS AND EQUIPMENT** | | | |
| Weighing Scale | | 2 | 1:13 |
| Height/Stadiometer | | 2 | 1:13 |
| Measuring Tape | | 10 | 1:3 |
| Calipers | | 5 | 1:5 |
| Blood Glucose Meters | | 5 | 1:5 |
| Blood Pressure Monitors | | 5 | 1:5 |
| Food Frequency Questionnaires (FFQs) | | 25 | 1:1 |
| 24-Hour Dietary Recall | | 25 | 1:1 |
| Food Diaries | | 25 | 1:1 |
| Food Models | | 25 | 1:1 |
| **PERSONAL PROTECTIVE EQUIPMENTS(PPEs)** | | | |
| Dust coat or gown | 25 | | 1:1 |
| Closed shoes | 25 | | 1:1 |
| Gloves | 5 boxes | | 1: 5 |
| Face protection Goggles or face shield | 25 | | 1:1 |

# MODULE VI

**FOOD MICROBIOLOGY AND PARASITOLOGY TECHNIQUES**

**UNIT CODE: 0915 551 21A**

**UNIT DURATION: 120 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Knowledge of Food Microbiology and Parasitology Techniques

**Unit Description**

This unit describes competencies required to knowledge of microbiology and parasitology. It involves applying knowledge of microorganisms and parasites in food and food environment, applying knowledge of physiology, genetics, biochemistry and behavior of food microorganisms, applying knowledge of microorganisms in food fermentation, applying knowledge of microbiological aspects of food safety, applying knowledge on methods of identification and enumeration of food microorganism.

**Summary of Learning Outcomes**

1. Apply knowledge of microorganisms and parasites in food and food environment
2. Apply knowledge of physiology, genetics, biochemistry and behavior of food microorganisms
3. Apply knowledge of microorganisms in food fermentation
4. Apply knowledge of microbiological aspects of food safety
5. Apply knowledge on methods of identification and enumeration of food microorganism

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Apply knowledge of microorganisms and parasites in food and food environment | 1. Food microbiology and parasitology concepts    * 1. Meaning of terms in food microbiology         1. Microbiology         2. Toxins         3. Toxicant         4. Incubation period         5. Food microbiology         6. Food safety         7. Food spoilage    1. Classification of food microorganisms       1. Prokaryote       2. Eukaryote   1.3 Basic types of food microorganism and parasite   * + 1. Types of bacteria        1. Bacteria        2. Viruses        3. Fungi        4. Algae.     2. Types of Parasites        1. Protozoa        2. Helminths        3. Ectoparasites   1.4. Roles of microorganisms in food safety and spoilage   * 1. Microscopy      1. Types of microscopes      2. Parts of a light microscope      3. Application of a microscope      4. Use, care and maintenance of microscope | 30 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of physiology, genetics, biochemistry and behavior of food microorganisms | * 1. Microorganisms’ anatomy and physiology      1. Anatomy of microorganisms:         1. Shapes and arrangement of microorganisms,         2. Cell cytology,         3. Bacterial cell arrangement Sporulation, Cocci, bacillus, spiral chains      2. Physiology         1. Metabolic processes         2. Growth and reproduction         3. Cell structure and function         4. Adaptation mechanism         5. genome structure and function         6. horizontal gene transfer         7. mutation and evolution         8. genetic manipulation   2. Anatomy and Physiology of parasites      1. Anatomy of parasites         1. Shapes and arrangement of parasites      2. Physiology         1. Metabolic processes         2. Growth and reproduction         3. Cell structure and function         4. Adaptation mechanism   3. Factors influencing growth and activity of food microorganism and parasites      1. Intrinsic factors.         1. Nutrient content         2. Water activity         3. PH         4. Antimicrobial substances         5. Biological structures      2. Extrinsic factors.         1. Temperature         2. Oxygen concentration         3. Relative humidity   4. Growth pattern of microorganisms and parasites      1. Stages of microbial growth      2. Microbial growth curve   5. Gram staining method | 32 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of microorganisms in food fermentation | 1. Significance of food fermentation 2. Fermentation processes    * 1. Types of fermentation         1. Aerobic         2. Anaerobic      2. Steps in fermentation process 3. Microorganisms in fermentation process.    * 1. Lactic acid bacteria      2. Yeast      3. Mould | 18 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge of microbiological aspects of food safety. | 1. Microbial concepts in food safety    * 1. Food contamination      2. Food poisoning      3. Food infection      4. Food intoxication 2. Microbial aspects of food safety during production and processing. 3. Microbial aspects of food safety during distribution and storage | 20 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |
| 1. Apply knowledge on methods of identification and enumeration of food microorganism | 1. Laboratory equipment    * 1. Microscope      2. Autoclave      3. Petri dish      4. Inoculating loop 2. Food microorganisms    * 1. Culturing      2. Staining      3. Observation of morphology, 3. Enumeration of food microorganisms.    * 1. Standard plate count      2. Turbidimetric method      3. Total cell count | 20 | * Practical * Portfolio of Evidence * Written assessment * Oral assessment * Third party report |

**Suggested Methods of Delivery**

* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| **Materials** | | | |
| **No** | **Type of material** | **Quantity** | **Ratio** |
| 1 | Internet connection | - | - |
| 3 | Flip charts | - | - |
| 4 | Whiteboard markers | - | - |
| **Tools and Equipment** | | | |
| 1 | Microscope | 5 | 1:5 |
| 2 | Petri dish | 5 | 1:5 |
| 3 | Autoclave | 1 | 1:25 |
| 4 | Inoculating loop | 13 | 1:2 |
| 5 | Incubator | 1 | 1:25 |
| 6 | Parafilm | 2 | 1:13 |
| 7 | Aluminum foil | 2 | 1:13 |
| 8 | Crystal Violet | 1 | 1:25 |
| 9 | Safranin | 1 | 1:25 |
| 10 | Iodine Solution | 1 | 1:25 |
| 11 | Neutral red | 1 | 1:25 |
| 12 | PH meter | 5 | 1:5 |
| 13 | Ethanol | 1 | 1:25 |
| 14 | Nutrient agar | 1 | 1:25 |
| 15 | Mackonkey | 1 | 1:25 |
| 16 | Beaker | 5 | 1:5 |
| 17 | Burnsen burner | 13 | 1:2 |
| 18 | Waste disposal bin | 1 | 1:25 |
| 19 | Laboratory | 1 | 1:25 |
| 20 | Cold chains | 1 | 1:25 |
| **Personal Protective Equipment** | | | |
| 1 | Dust coat or gown | 25 | 1:1 |
| 2 | Closed shoes | 25 | 1:1 |
| 3 | Gloves | 25 | 1:1 |
| 4 | Face masks | 25 | 1:1 |
| 5 | Protection goggles or face shield | 25 | 1:1 |
| 6 | Head cover, | 25 | 1:1 |
| 7 | Rubber boots | 25 | 1:1 |

**NUTRITION RESEARCH**

**UNIT CODE: 0915 551 22A**

**UNIT DURATION: 150 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Conduct Nutrition Research

**Unit Description**

This unit describes competencies required to conduct nutrition research. It involves determining the research problem, determine nutrition research design, developing research tools, conducting data collection, analyzing collected data and preparing research report.

**Summary of Learning Outcomes**

1. Determine nutrition research problem
2. Determine nutrition research design
3. Develop nutrition research tool
4. Conduct data collection
5. Analyze collected data
6. Prepare nutrition research report

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Determine nutrition research problem | * 1. Nutrition problems      1. Definition of terms         1. Population         2. Sample         3. Sampling         4. Variable         5. Data         6. Parameter         7. Statistics         8. Objective         9. Literature review      2. Types of research      3. Purpose of research      4. Components of research      5. History of research      6. Research outline   2. Research topics      1. Sources research problem      2. Selecting a research problem      3. Formulating research title   3. Research objectives and questions      1. Stating the purpose of the research      2. Formulating research objective      3. Formulating research questions      4. Justification of the research   4. Literature review      1. Purpose of literature review      2. Steps in carrying out literature review      3. Sources of literature      4. Evaluating information sources      5. Citation and referencing styles | 34 | * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Determine nutrition research design | * 1. Study design      1. Definition of research design      2. Types of research design         1. Descriptive         2. Correlational         3. Experimental         4. Diagnostic         5. Observational         6. Cross sectional         7. Intervention studies      3. Factors to consider in selecting a study design   2. Study population      1. Definition of study population      2. How to establish a study population   3. Sampling      1. Sampling techniques      2. Merits and demerits of sampling      3. Selecting Sampling techniques      4. Determination of sample size   4. Data collection methods      1. Types of data      2. Data collection methods         1. Surveys         2. Interviews         3. Observations         4. Focus groups         5. Experiments         6. Secondary data analysis   5. Budget and resources   6. Research work plan   7. Ethics in research      1. Ethical treatment of participants      2. Ethics and the sponsor      3. Researchers and the team members | 20 | * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Develop nutrition research tool | 1. Research tools    * 1. Surveys and questionnaire      2. Observation checklist      3. Mobile data collection tools      4. Data analysis software      5. Data visualization tools      6. Geographic Information systems (GIS)    1. Designing research tools    2. Pretesting research tools       1. Purpose of pretesting | 20 | * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Conduct data collection | 1. Establishing data collection team    * 1. Determining human resource need      2. Outlining the skills required for data collection team    1. Training data collection team       1. Training needs assessment for data collection team       2. Training on research protocols       3. training on the research study    2. Administration of research tools       1. Data collection    3. Documentation of collected data | 22 | * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Analyze collected data | 1. Selection of data analysis methods    * 1. Descriptive      2. Inferential      3. Predictive    1. Data analysis    2. Data interpretation    3. Results findings | 24 | * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 1. Prepare nutrition research report | * 1. Compilation of research report   2. Documentation of research report   3. Dissemination of research report      1. Conferences      2. Review journals      3. Seminars      4. Website and Blogs      5. Media | 30 | * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |

**Suggested Methods of Instruction**

* Projects
* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/No** | **Item** | **Quantity** | **Student Ratio** |
| 1 | Laptop | 1 | 1:25 |
| 2 | Projector | 1 | 1:25 |
| 3 | Internet connectivity |  |  |
| 4 | White boards | 1 | 1:25 |
| 5 | Flip chart | 2 rolls | 1:25 |
| 6 | Whiteboard markers | 3 | 1:25 |
| **PPEs** | | | |
| 7 | Dust coat or gown | 25 | 1:1 |
| 8 | Gloves | 25 pairs | 1:1 |
| 9 | Masks | 25 | 1:1 |

**DIET THERAPY IN NON-SYSTEMIC CONDITIONS**

**UNIT CODE: 0915 551 23A**

**UNIT DURATION: 120 Hours**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Provide Diet Therapy in Non-systemic conditions

**Unit Description**

This unit standard specifies the competencies required to provide diet therapy in non-systemic disorders. It involves assessing non- systemic disorders of the client, formulate individualized feeding care plan, carrying out feeding plan interventions and conducting continuous dietary monitoring.

**Summary of Learning Outcomes**

1. Assess non- systemic disorder of the client
2. Formulate individualized feeding care plan
3. Carry out feeding care plan interventions
4. Conduct continuous dietary monitoring

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Assessment Methods** |
| 1. Assess non- systemic disorder client | * 1. Definition of terms      1. Disease      2. Non-systemic      3. Diet modification      4. Therapeutic diet      5. Normal diet   2. PPEs      1. Introduction to PPEs      2. Types of PPEs   1.2.2.1 Medical examination gloves  1.2.2.2 Laboratory coat   * + 1. Importance of PPEs   1. Non-systemic disorders      1. Types of non-systemic disorders         1. Trauma, Surgery and Burns         2. Renal disorders         3. Musculoskeletal disorders         4. Cardiovascular disorders         5. Hypertension         6. Cancer   2. Methods of dietary assessment      1. 24 Hour Dietary Recall      2. Food Frequency Questionnaire      3. Diet history/Food diaries      4. Dietary Diversity   3. Nutrition diagnosis of non-systemic disorders      1. Problem identification of non-systemic disorders      2. Etiology of non-systemic disorders      3. Signs and symptoms of non-systemic disorders   4. Nutrition diagnostic statement      1. Formulation of nutrition diagnostic statement      2. Components of nutrition diagnostic statement         1. Problem         2. Etiology   1.6.2.3 Signs and Symptoms | 42 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 2.Formulate individualized feeding care plan | * 1. Nutrition needs in non-systemic disorders      1. Total caloric needs      2. Macronutrient needs      3. Micronutrient needs      4. Setting Nutritional goals for non-systemic disorders   2. Specific Nutritional requirements for non-systemic disorders      1. Supplementation      2. Food enrichment      3. Development of feeding plan for non-systemic disorders      4. Designing customized feeding plan for non-systemic disorders      5. Dietary modifications for non-systemic disorders   3. Collaborative care between nutritionists and other care experts      1. Role of nutrition support professional         1. Dietitian         2. Physician         3. Nurses         4. Pharmacist   4. Documentation of the feeding plan for non-systemic disorders | 30 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 3.Carry out feeding care plan interventions | * 1. Dietary counseling in non-systemic disorders   2. Safe food handling procedures      1. Personal Hygiene      2. Food storage      3. Individualized Food preparation      4. Serving and consumption   3. Feeding routes      1. Oral feeding      2. Enteral feeding      3. Parenteral feeding | 24 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |
| 4.Conduct continuous dietary monitoring | * 1. Reassessment of a client in non-systemic disorder   2. Necessary reintervention      1. Review of previous data      2. Review of goals      3. Redesign a diet plan      4. Referral         1. Referrals of a client with non-systemic disorder         2. Factors to consider when referring a client with a non-systemic disorder         3. Client referral procedure   3. Documentation of the redesigned diet plan | 24 | * Practical * Project * Portfolio of Evidence * Written assessment * Oral assessments * Third party report |

**Suggested Methods of Instruction**

* Projects
* Demonstration
* Practical
* Discussions
* Direct instruction
* Role play

**Recommended Resources for 25 Trainees**

|  |  |  |  |
| --- | --- | --- | --- |
| **Materials and Resources** | | | |
|  | **Items** | **Quantity** | **Ratio** |
|  | Internet connection | - | - |
|  | Laptop | 1 | 1:25 |
|  | Projector | 1 | 1:25 |
|  | Whiteboard | 1 | 1:25 |
|  | Flip Charts | 5 | 1:5 |
|  | Body system charts (Assorted) | 5 | 1:5 |
|  | **Tools and Equipment** | | |
|  | Microscope | 8 | 1:3 |
|  | Laboratory coat | 1 | 1:25 |
|  | Weighing Scale | 5 | 1:5 |
|  | Body Mass Index (BMI) Calculator | 5 | 1:5 |
|  | Blood Glucose Meters | 5 | 1:5 |
|  | Blood Pressure Monitors | 5 | 1:5 |
|  | Food Frequency Questionnaires (FFQs) | 25 | 1:1 |
|  | 24-Hour Dietary Recall | 25 | 1:1 |
|  | Food Diaries | 25 | 1:1 |
|  | Electronic Health Records (EHRs) | 25 | 1:1 |
|  | Food Models and Visual Aids | 5 | 1:5 |
|  | Skin fold Calipers | 5 | 1:5 |
|  | Measuring Tape | 5 | 1:5 |
|  | Height/Stadiometers | 5 | 1:5 |
|  | **PPEs** | | |
|  | Face masks | 25 | 1:1 |
|  | Face shields | 25 | 1:1 |
|  | Closed shoes | 25 | 1:25 |
|  | Gloves | 25 | 1:25 |
|  | Dust coat | 25 | 1:25 |
|  | Head cover | 25 | 1:25 |

# NUTRITIONAL CARE IN MENTAL HEALTH

**UNIT CODE: 0915 551 24A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Provide Nutritional Care in Mental Health.

**Duration of Unit:** 100 hours

**Unit Description**

This unit cover the competencies required to provide nutritional care in mental health. It involves assessing client with mental condition, providing nutrition interventions in mental health disorders, following up of clients on nutrition care and evaluating nutritional care.

**Summary of Learning Outcomes**

1. Assess the client with mental condition for nutritional care
2. Provide nutrition intervention in mental health disorder
3. Follow up client on nutrition care
4. Conduct evaluation of the nutritional care

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Duration**  **(Hours)** | **Suggested Methods of Assessment** |
| 1. Assess the client with mental condition for nutritional care | 1. Definition of terms in mental health 2. Occupational safety and health concerns 3. Principles of human psychology 4. The nervous system in mental health 5. Human growth and development 6. Common mental health disorders 7. Importance of nutrition in preventing mental health issues | 30 | * Written assessment * Oral assessment * Portfolio of evidence * Practical * Third party reports |
| 1. Provide nutrition intervention in mental health disorders | * 1. Nutrition management of mental health disorders   2. Role of micronutrient in cognitive functions   3. Health interventions in mental health   4. Drug- nutrient interactions in mental health conditions   5. Food-drug interaction in mental health conditions   6. Collaborative care in mental health management | 30 | * Written assessment * Oral assessment * Portfolio of evidence * Practical * Third party reports |
| 3. Follow up client on nutritional care | * 1. Ethical considerations and professionalism in providing nutrition care for mental health   2. Referrals for mental health patients   3. Psychosocial factors affecting nutrition | 20 | * Written assessment * Oral assessment * Portfolio of evidence * Practical * Third party reports |
| 4. Conduct evaluation of the nutritional care | * 1. Theories of personality development   2. Psychological defence mechanisms   3. Psychosexual stages in human development | 20 | * Written assessment * Oral assessment * Portfolio of evidence * Practical * Third party reports |

**Suggested Methods of Instruction**

* Instructor lead facilitation of theory
* Simulation/Role play
* Group Discussion
* Education trip to health facility
* Role play
* Project
* Practical

Recommended Resources for 25 Trainees

|  |  |  |  |
| --- | --- | --- | --- |
| **MATERIALS** | | | |
|  | **ITEM** | **QUANTITY** | **RATIO** |
|  | Functional Skills laboratory | 1 | 1:25 |
|  | Computers | 12 | 1:2 |
|  | Adequately Equipped library | 1 | - |
|  | MoH/World Health Organization (WHO) guidelines | - | - |