



REPUBLIC OF KENYA

COMPETENCY BASED CURRICULUM

FOR

HUMAN NUTRITION AND DIETETICS

LEVEL 5



TVET CDACC
P.O. BOX 15745-00100
NAIROBI

First published 2019
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FOREWORD

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

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting 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. 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 mode of delivery allows 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.

It is my conviction that this curriculum will play a great role towards development of competent human resource for the Nutrition and dietetics Sector's growth and development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING
MINISTRY OF EDUCATION**

PREFACE

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

The Technical and Vocational Education and Training Act No. 29 of 2013 on Reforming Education and Training in Kenya, 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 Kenyan labour force.

TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) in conjunction with Nutrition and dietetics Sector Skills Advisory Committee (SSAC) have developed this curriculum.

This curriculum is designed and organized with an outline of learning outcomes; Suggested Methods of Instruction, training/learning resources and methods of assessing the trainee’s achievement. The curriculum is competency-based and allows multiple entry and exit to the course.

I am grateful to the Council Members, Council Secretariat, Nutrition and dietetics SSAC, expert workers and all those who participated in the development of this curriculum.

CHAIRPERSON, TVET CDACC

ACKNOWLEDGMENT

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

I recognize with appreciation the role of the Nutrition and dietetics Sector Skills Advisory Committee (SSAC) 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 all those who participated in the process of developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that workers in Nutrition and dietetics Sector acquire competencies that will enable them to perform their work more efficiently.

**COUNCIL SECRETARY/CEO
TVET CDACC**

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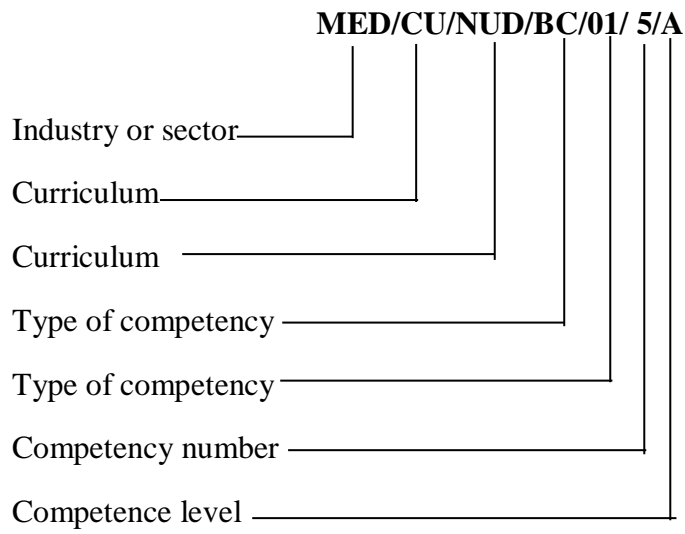
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ACRONYMS AND ABBREVIATIONS

BC	: Basic Competency
BFCI	: Baby Friendly Community Initiative
BFHI	: Baby Friendly Hospital Initiative
BMS	: Breast Milk Substitute
CC	: Core Competency
CDACC	: Curriculum Development Assessment and Certification Council
CO	: Common Units
CU	: Curriculum
IMAM	: Integrated Management of Acute Malnutrition
IYCN	: Infant and Young Child Nutrition
KCSE	: Kenya Certificate of Secondary Education
KNQA	: Kenya National Qualifications Authority
MED	: Medical
MIYCN	: Maternal Infant and Young Child Nutrition
NUD	: Nutrition and dietetics
OSHA	: Occupation Safety and Health Act
PPE	: Personal Protective Equipment
SSAC	: Sector Skills Advisory Committee
TVET	: Technical and Vocational Education and Training

KEY TO UNIT CODE



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COURSE OVERVIEW

Human Nutrition and Dietetics Certificate Level 5 qualification consists of units of learning that a person must achieve to apply nutrition in emergency, apply principles of human nutrition, conduct nutrition care process and plan and manage meals. It also enables an individual to conduct community health and nutrition education and counselling, apply dietetic principles and conduct nutrition assessment and surveillance.

The units of learning leading to Human Nutrition and Dietetics Certificate Level 5 qualification include the following basic and core units of learning:

Units of Learning

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

Basic Units of Learning

Unit Code	Unit Title	Duration in Hours	Credit Factor
MED/CU/NUD/BC/01/5/A	Communication skills	25	2.5
MED/CU/NUD/BC/02/5/A	Occupational safety and health practices	40	4
MED/CU/NUD/BC/03/5/A	Numeracy skills	45	4.5
MED/CU/NUD/BC/04/5/A	Digital literacy	70	7
MED/CU/NUD/BC/05/5/A	Entrepreneurial skills	50	5
MED/CU/NUD/BC/06/5/A	Employability skills	25	2.5
MED/CU/NUD/BC/07/5/A	Environmental literacy	25	2.5
Total		280	28

Common units of learning

Unit Code	Unit Title	Duration in Hours	Credit Factor
MED/CU/NUD/CC/01/5/A	General biology 2	45	4.5
MED/CU/NUD/CC/02/5/A	Food microbiology 3	40	4
MED/CU/NUD/CC/03/5/A	Food processing, safety and hygiene 4	45	4.5
Total		130	13

Core units of learning

Unit Code	Unit Title	Duration in Hours	Credit Factor
MED/CU/NUD/CR/01/5/A	Nutrition in emergency 9	60	6
MED/CU/NUD/CR/02/5/A	Principles of human nutrition 1	70	7
MED/CU/NUD/CR/03/5/A	Nutrition care process 7	100	10
MED/CU/NUD/CR/04/5/A	Meal planning and management 5	90	9
MED/CU/NUD/CR/05/5/A	Community health and nutrition education 6	80	8
MED/CU/NUD/CR/06/5/A	Principles of dietetics 10	100	10
MED/CU/NUD/CR/07/5/A	Nutrition assessment and surveillance	80	8
	Industrial attachment	360	36
Total		940	94
Sub Total		1350	135

The total duration of the course is 1350 hours.

Entry Requirements

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

- a) Kenya Certificate of Secondary Education (KCSE) D Plain

Or

- b) Equivalent qualifications as determined by Kenya National Qualifications Authority (KNQA)

Assessment

The course will be assessed at two levels:

- a) **Internal assessment:** conducted continuously by the trainer (internal assessor) who is monitored by an accredited internal verifier.
- b) **External assessment:** conducted by an accredited external assessor who is monitored by an accredited external verifier.

The assessors and verifiers are accredited by TVET CDACC which also coordinates external assessment.

Certification

On successful completion of a unit of learning, a trainee will be issued with a Certificate of Competence and on successful completion of all units of learning a trainee will be awarded a Human nutrition and dietetics Certificate Level 5 qualification. These certificates will be issued by TVET CDACC in conjunction with training provider.

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BASIC UNITS OF LEARNING

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COMMUNICATION SKILLS

UNIT CODE: MED/CU/NUD/BC/01/5/A/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Communication Skills

Duration of Unit: 25 hours

Unit Description

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

Summary of Learning Outcomes

1. Meet communication needs of clients and colleagues
2. Contribute to the development of communication strategies
3. Conduct interviews
4. Facilitate group discussions
5. Represent the organization

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Meet communication needs of clients and colleagues	<ul style="list-style-type: none">• Communication process• Modes of communication• Medium of communication• Effective communication• Barriers to communication• Flow of communication• Sources of information• Organizational policies• Organization requirements for written and electronic communication methods• Report writing• Effective questioning techniques (clarifying and probing)	<ul style="list-style-type: none">• Interview• Third party reports• Written texts

	<ul style="list-style-type: none"> • Workplace etiquette • Ethical work practices in handling communication • Active listening • Feedback • Interpretation • Flexibility in communication 	
2. Contribute to the development of communication strategies	<ul style="list-style-type: none"> • Dynamics of groups • Styles of group leadership • Openness and flexibility in communication • Communication skills relevant to client groups 	<ul style="list-style-type: none"> • Written • Observation
3. Conduct interviews	<ul style="list-style-type: none"> • Types of interview • Establishing rapport • Facilitating resolution of issues • Developing action plans 	<ul style="list-style-type: none"> • Written • Observation
4. Facilitate group discussions	<ul style="list-style-type: none"> • Identification of communication needs • Dynamics of groups • Styles of group leadership • Presentation of information • Encouraging group members participation • Evaluating group communication strategies 	<ul style="list-style-type: none"> • Written • Observation
5. Represent the organization	<ul style="list-style-type: none"> • Presentation techniques • Development of a presentation • Multi-media utilization in presentation • Communication skills relevant to client groups 	<ul style="list-style-type: none"> • Observation • Written

Suggested Methods of Instructions

- Role playing
- Viewing of related videos

Recommended Resources

- Desktop computers/laptops
- Internet connection
- Projectors
- Telephone

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NUMERACY SKILLS

UNIT CODE: MED/CU/NUD/BC/02/5/A/A

Relationship to Occupational Standards:

This unit addresses the Unit of Competency: Demonstrate Numeracy Skills

Duration of Unit: 40 hours

Unit Description

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

Summary of Learning Outcomes

1. Calculate with whole numbers and familiar fractions, decimals and percentages for work
2. Estimate, measure and calculate with routine metric measurements for work
3. Use routine maps and plans for work
4. Interpret, draw and construct 2D and 3D shapes for work
5. Interpret routine tables, graphs and charts for work
6. Collect data and construct routine tables and graphs for work
7. Use basic functions of calculator

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Calculate with whole numbers and familiar fractions, decimals and percentages for work	<ul style="list-style-type: none">• Interpretation of whole numbers, fractions, decimals, percentages and rates• Calculations involving several steps• Calculation with whole numbers and routine or familiar fractions, decimals	<ul style="list-style-type: none">• Written• Practical test• Observation

	<p>and percentages</p> <ul style="list-style-type: none"> • Conversion between equivalent forms of fractions, decimals and percentages • Application of order of operations to solve multi-step calculations • Application of problem solving strategies • Making estimations to check reasonableness of problem solving process, outcome and its appropriateness to the context and task • Use of formal and informal mathematical language and symbolism to communicate the result of a task 	
2. Estimate, measure and calculate with routine metric measurements for work	<ul style="list-style-type: none"> • Selection and interpretation of measurement information in workplace tasks and texts • Identification and selection of routine measuring equipment • Estimation and making measurements using correct units • Estimation and calculation using routine measurements • Performing conversions between routinely used metric units • Using problem solving processes to undertake tasks • Recording information using mathematical language and symbols 	<ul style="list-style-type: none"> • Written • Practical test • Observation
3. Use routine maps and plans for work	<ul style="list-style-type: none"> • Identification of features in routine maps and plans • Symbols and keys used in routine maps and plans • Identification and interpretation of orientation of 	<ul style="list-style-type: none"> • Written • Practical test • Observation

	<p>map to North</p> <ul style="list-style-type: none"> • Demonstrate understanding of direction and location • Apply simple scale to estimate length of objects, or distance to location or object • Give and receive directions using both formal and informal language 	
4. Interpret, draw and construct 2D and 3D shapes for work	<ul style="list-style-type: none"> • Identify two dimensional shapes and routine three dimensional shapes in everyday objects and in different orientations • Explain the use and application of shapes • Use formal and informal mathematical language and symbols to describe and compare the features of two dimensional shapes and routine three dimensional shapes • Identify common angles • Estimate common angles in everyday objects • Use formal and informal mathematical language to describe and compare common angles • Use common geometric instruments to draw two dimensional shapes • Construct routine three dimensional objects from given nets 	<ul style="list-style-type: none"> • Written • Practical test • Observation
5. Interpret routine tables, graphs and charts for work	<ul style="list-style-type: none"> • Identify routine tables, graphs and charts in predominately familiar texts and contexts • Identify common types of graphs and their different uses • Identify features of tables, graphs and charts 	<ul style="list-style-type: none"> • Oral • Written • Practical test • Observation

	<ul style="list-style-type: none"> • Locate specific information • Perform calculations to interpret information • Explain how statistics can inform and persuade • Identify misleading statistical information • Discuss information relevant to the workplace 	
6. Collect data and construct routine tables and graphs for work	<ul style="list-style-type: none"> • Identify features of common tables and graphs • Identify uses of different tables and graphs • Determine data and variables to be collected • Determine audience • Select a method to collect data • Collect data • Collate information in a table • Determine suitable scale and axes • Draft and draw graph to present information • Check that data meets the expected results and context • Report or discuss information using formal and informal mathematical language 	<ul style="list-style-type: none"> • Written • Practical test • Observation
7. Use basic functions of calculator	<ul style="list-style-type: none"> • Identify and use keys for basic functions on a calculator • Calculate using whole numbers, money and routine decimals and percentages • Calculate with routine fractions and percentages • Apply order of operations to solve multi-step calculations • Interpret display and record result • Make estimations to check reasonableness of problem 	<ul style="list-style-type: none"> • Written • Practical test • Observation

	<p>solving process, outcome and its appropriateness to the context and task</p> <ul style="list-style-type: none"> • Use formal and informal mathematical language and appropriate symbolism and conventions to communicate the result of the task 	
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Suggested Methods of Instructions

- Demonstrations
- Role playing
- Viewing of related videos
- Discussion
- Assignments

Recommended resources

- Calculators
- Basic measuring instruments

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DIGITAL LITERACY

UNIT CODE: MED/CU/NUD/BC/03/5/A/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Digital Literacy

Duration of Unit: 45 hours

Unit Description

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

Summary of Learning Outcomes

1. Identify computer software and hardware
2. Apply security measures to data, hardware, software in automated environment
3. Apply computer software in solving tasks
4. Apply internet and email in communication at workplace
5. Apply desktop publishing in official assignments
6. Prepare presentation packages

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify computer hardware and software	<ul style="list-style-type: none">• Concepts of ICT• Functions of ICT• History of computers• Components of a computer• Classification of computers	<ul style="list-style-type: none">• Written tests• Oral presentation• Observation
2. Apply security measures to data, hardware and software	<ul style="list-style-type: none">• Data security and control• Security threats and control measures• Types of computer crimes• Detection and protection against computer crimes• Laws governing protection of ICT	<ul style="list-style-type: none">• Written tests• Oral presentation• Observation• Project
3. Apply computer software in solving	<ul style="list-style-type: none">• Operating system• Word processing	<ul style="list-style-type: none">• Oral questioning• Observation

tasks	<ul style="list-style-type: none"> • Spread sheets • Data base design and manipulation • Data manipulation, storage and retrieval 	<ul style="list-style-type: none"> • Project
4. Apply internet and email in communication at workplace	<ul style="list-style-type: none"> • Computer networks • Network configurations • Uses of internet • Electronic mail (e-mail) concept 	<ul style="list-style-type: none"> • Oral questioning • Observation • Oral presentation • Written report
5. Apply desktop publishing in official assignments	<ul style="list-style-type: none"> • Concept of desktop publishing • Opening publication window • Identifying different tools and tool bars • Determining page layout • Opening, saving and closing files • Drawing various shapes using DTP • Using colour pellets to enhance a document • Inserting text frames • Importing and exporting text • Object linking and embedding • Designing of various publications • Printing of various publications 	<ul style="list-style-type: none"> • Oral questioning • Observation • Oral presentation • Written report • Project
6. Prepare presentation packages	<ul style="list-style-type: none"> • Types of presentation packages • Procedure of creating slides • Formatting slides • Presentation of slides • Procedure for editing objects 	<ul style="list-style-type: none"> • Oral questioning • Observation • Oral presentation • Written report • Project

Suggested Methods of Instructions

- Demonstration
- Viewing of related videos
- Discussions
- Assignments
- Direct instructions

Recommended Resources

- Computers
- Other digital devices
- Printers
- Storage devices

- Internet access
- Computer software

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ENTREPRENEURSHIP SKILLS

UNIT CODE: MED/CU/NUD/BC/04/5/A/A

Relationship to occupational standards

This unit addresses the Unit of Competency: Demonstrate Understanding of Entrepreneurship

Duration of unit: 70 hours

Unit Description

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

Summary of Learning Outcomes

1. Demonstrate understanding of an entrepreneur
2. Demonstrate knowledge of entrepreneurship and self-employment
3. Identify entrepreneurship opportunities
4. Create entrepreneurial awareness
5. Apply entrepreneurial motivation
6. Develop innovative business strategies
7. Develop Business plan

Learning Outcome	Content	Suggested Assessment Methods
1. Demonstrate knowledge of entrepreneurship and self-employment	<ul style="list-style-type: none">• Importance of self-employment• Requirements for entry into self-employment• Role of an Entrepreneur in business• Contributions of Entrepreneurs to National development• Entrepreneurship culture in Kenya• Born or made entrepreneurs	<ul style="list-style-type: none">• Individual/group assignments• Projects• Written tests• Oral questions• Third party report• Interviews

2. Identify entrepreneurship opportunities	<ul style="list-style-type: none"> • Business ideas and opportunities • Sources of business ideas • Business life cycle • Legal aspects of business • Assessment of product demand • Business environment • Factors to consider when evaluating business environment • Technology in business 	<ul style="list-style-type: none"> • Individual/group assignments • Projects • Written tests • Oral questions • Third party report • Interviews
3. Create entrepreneurial awareness	<ul style="list-style-type: none"> • Forms of businesses • Sources of business finance • Factors in selecting source of business finance • Governing policies on Small Scale Enterprises (SSEs) • Problems of starting and operating SSEs 	<ul style="list-style-type: none"> • Individual/group assignments • Projects • Written tests • Oral questions • Third party report • Interviews
4. Apply entrepreneurial motivation	<ul style="list-style-type: none"> • Internal and external motivation • Motivational theories • Self-assessment • Entrepreneurial orientation • Effective communications in entrepreneurship • Principles of communication • Entrepreneurial motivation 	<ul style="list-style-type: none"> • Case studies • Individual/group assignments • Projects • Written tests • Oral questions • Third party report • Interviews

5. Develop business innovative strategies	<ul style="list-style-type: none"> • Innovation in business • Small business Strategic Plan • Creativity in business development • Linkages with other entrepreneurs • ICT in business growth and development 	<ul style="list-style-type: none"> • Case studies • Individual/group assignments • Projects • Written tests • Oral questions • Third party report • Interviews
6. Develop Business Plan	<ul style="list-style-type: none"> • Business description • Marketing plan • Organizational/Management plan • Production/operation plan • Financial plan • Executive summary • Presentation of Business Plan 	<ul style="list-style-type: none"> • Case studies • Individual/group assignments • Projects • Written tests • Oral questions • Third party report • Interviews

Suggested Methods of instructions:

- Direct instruction
- Project
- Case studies
- Field trips
- Discussions
- Demonstration
- Question and answer
- Problem solving
- Experiential
- Team training

Recommended Resources

- Case studies
- Business plan templates
- Computers
- Overhead projectors
- Internet
- Mobile phone
- Video clips

- Films
- Newspapers and Handouts
- Business Journals
- Writing materials

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EMPLOYABILITY SKILLS

UNIT CODE: MED/CU/NUD/BC/05/5/A/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Employability Skills

Duration of Unit: 50 hours

Unit Description

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

Summary of Learning Outcomes

1. Conduct self-management
2. Demonstrate interpersonal communication
3. Demonstrate critical safe work habits
4. Lead small teams
5. Plan and organize work
6. Maintain professional growth and development
7. Demonstrate workplace learning
8. Demonstrate problem solving skills
9. Demonstrate workplace ethics

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct self-management	<ul style="list-style-type: none">• Self-awareness• Formulating personal vision, mission and goals• Strategies for overcoming life challenges• Emotional intelligence• Assertiveness versus aggressiveness• Expressing personal thoughts, feelings and beliefs	<ul style="list-style-type: none">• Written tests• Oral questioning• Interviewing• Portfolio of evidence• Third party report

	<ul style="list-style-type: none"> • Developing and maintaining high self-esteem • Developing and maintaining positive self-image • Articulating ideas and aspirations • Accountability and responsibility • Good work habits • Self-awareness • Self-development • Financial literacy • Healthy lifestyle practices 	
2. Demonstrate interpersonal communication	<ul style="list-style-type: none"> • Meaning of interpersonal communication • Listening skills • Types of audience • Writing skills • Reading skills • Meaning of empathy • Understanding customers' needs • Establishing communication networks • Sharing information 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Interviewing • Portfolio of evidence • Third party report
3. Demonstrate critical safe work habits	<ul style="list-style-type: none"> • Stress and stress management • Punctuality and time consciousness • Leisure • Integrating personal objectives into organizational objectives • Resources utilization • Setting work priorities • HIV and AIDS • Drug and substance abuse • Handling emerging issues 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Interviewing • Portfolio of evidence • Third party report
4. Lead a small team	<ul style="list-style-type: none"> • Leadership qualities • Team building • Determination of team roles and objectives • Team performance indicators 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Interviewing • Portfolio of evidence • Third party report

	<ul style="list-style-type: none"> • Responsibilities in a team • Forms of communication • Complementing team activities • Gender and gender mainstreaming • Human rights • Maintaining relationships • Conflicts and conflict resolution 	
5. Plan and organize work	<ul style="list-style-type: none"> • Functions of management <ul style="list-style-type: none"> ✓ Planning ✓ Organizing • Time management • Decision making process • Task allocation • Evaluating work activities • Resource utilization • Problem solving • Collecting and organising information 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Interviewing • Portfolio of evidence • Third party report
6. Maintain professional growth and development	<ul style="list-style-type: none"> • Opportunities for professional growth • Assessing training needs • Licenses and certifications for professional growth and development • Pursuing personal and organizational goals • Identifying work priorities • Recognizing career advancement 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Interviewing • Portfolio of evidence • Third party report
7. Demonstrate workplace learning	<ul style="list-style-type: none"> • Managing own learning • Contributing to the learning community at the workplace • Cultural aspects of work • Variety of learning context • Application of learning • Safe use of technology • Identifying opportunities • Generating new ideas 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Interviewing • Portfolio of evidence • Third party report

	<ul style="list-style-type: none"> • Workplace innovation • Performance improvement • Handling emerging issues • Future trends and concerns in learning 	
8. Demonstrate problem solving skills	<ul style="list-style-type: none"> • Problem identification • Problem solving • Application of problem-solving strategies • Resolving customer concerns 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Interviewing • Portfolio of evidence • Third party report
9. Demonstrate workplace ethics	<ul style="list-style-type: none"> • Meaning of ethics • Ethical perspectives • Principles of ethics • Values and beliefs • Ethical standards • Organization code of ethics • Common ethical dilemmas • Organization culture • Corruption, bribery and conflict of interest • Privacy and data protection • Diversity, harassment and mutual respect • Financial responsibility/accountability • Etiquette • Personal and professional integrity • Commitment to jurisdictional laws • Emerging issues in ethics 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Interviewing • Portfolio of evidence • Third party report

Suggested Methods of Instructions

- Demonstrations
- Simulation/Role play
- Discussion
- Presentations
- Case studies
- Q&A

Recommended Resources

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors

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ENVIRONMENTAL LITERACY

UNIT CODE: MED/CU/NUD/BC/06/5/A/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Environmental Literacy

Duration of Unit: 25 hours

Unit Description

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

Summary of Learning Outcomes

1. Control environmental hazards
2. Control environmental Pollution
3. Demonstrate sustainable use of resource
4. Evaluate current practices in relation to resource usage
5. Identify Environmental legislations/conventions for environmental concerns
6. Implement specific environmental programs
7. Monitor activities on Environmental protection/Programs

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Control environmental hazards	<ul style="list-style-type: none">• Purposes and content of Environmental Management and Coordination Act 1999• Purposes and content of Solid Waste Act• Storage methods for environmentally hazardous materials• Disposal methods of hazardous wastes• Types and uses of PPE in line with	<ul style="list-style-type: none">• Written test• Oral questions• Observation

	<p>environmental regulations</p> <ul style="list-style-type: none"> • Occupational Safety and Health Standards (OSHS) 	
2. Control environmental Pollution control	<ul style="list-style-type: none"> • Types of pollution • Environmental pollution control measures • Types of solid wastes • Procedures for solid waste management • Different types of noise pollution • Methods for minimizing noise pollution 	<ul style="list-style-type: none"> • Written test • Oral questions • Observation
3. Demonstrate sustainable resource use	<ul style="list-style-type: none"> • Types of resources • Techniques in measuring current usage of resources • Calculating current usage of resources • Methods for minimizing wastage • Waste management procedures • Principles of 3Rs (Reduce, Reuse, Recycle) • Methods for economizing or reducing resource consumption 	<ul style="list-style-type: none"> • Written test • Oral questions • Observation
4. Evaluate current practices in relation to resource usage	<ul style="list-style-type: none"> • Collection of information on environmental and resource efficiency systems and procedures, • Measurement and recording of current resource usage • Analysis and recording of current purchasing strategies. • Analysis of current work processes to access information and data • Identification of areas for improvement 	<ul style="list-style-type: none"> • Written test • Oral questions • Observation
5. Identify Environmental legislations/conventions for environmental concerns	<ul style="list-style-type: none"> • Environmental issues/concerns • Environmental legislations /conventions and local ordinances • Industrial standard /environmental practices • International Environmental 	<ul style="list-style-type: none"> • Written questions • Oral questions • Observation

	Protocols (Montreal, Kyoto) <ul style="list-style-type: none"> • Features of an environmental strategy 	
6. Implement specific environmental programs	<ul style="list-style-type: none"> • Community needs and expectations • Resource availability • 5 s of good housekeeping • Identification of programs/Activities • Setting of individual roles /responsibilities • Resolving problems /constraints encountered • Consultation with stakeholders 	<ul style="list-style-type: none"> • Written questions • Oral questions • Observation
7. Monitor activities on Environmental protection/Programs	<ul style="list-style-type: none"> • Periodic monitoring and Evaluation of activities • Gathering feedback from stakeholders • Analysing data gathered • Documentation of recommendations and submission • Setting of management support systems to sustain and enhance the program • Monitoring and reporting of environmental incidents to concerned /proper authorities 	<ul style="list-style-type: none"> • Oral questions • Written tests • Practical test • Observation

Suggested Methods of Instructions

- Instructor led facilitation of theory
- Demonstration by trainer
- Viewing of related videos
- Project
- Assignments
- Role play

Recommended Resources

- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Environmental Management and Coordination Act 1999
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE)
- ISO standards

- Company environmental management systems (EMS)
- Montreal Protocol
- Kyoto Protocol

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OCCUPATIONAL SAFETY AND HEALTH PRACTICES

UNIT CODE: MED/CU/NUD/BC/07/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Demonstrate occupational safety and health practices

Duration of Unit: 25 hours

Unit Description

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

Summary of Learning Outcomes

1. Identify workplace hazards and risk
2. Control OSH hazards
3. Implement OSH programs

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify workplace hazards and risks	<ul style="list-style-type: none">• Identification of hazards in the workplace and/or the indicators of their presence• Evaluation and/or work environment measurements of OSH hazards/risk existing in the workplace is conducted by• Authorized personnel or agency• Gathering of OHS issues and/or concerns raised	<ul style="list-style-type: none">• Oral questions• Written tests• Portfolio of evidence• Third party report
2. Control OSH hazards	<ul style="list-style-type: none">• Prevention and control measures, including use of PPE (personal protective equipment) for specific hazards are identified and implemented• Appropriate risk controls based on result of OSH hazard	<ul style="list-style-type: none">• Oral questions• Written tests• Portfolio of evidence• Third party report

		<p>evaluation is recommended</p> <ul style="list-style-type: none"> Contingency measures, including emergency procedures during workplace incidents and emergencies are recognized and established in accordance with organization procedures 	
3. Implement programs	OSH	<ul style="list-style-type: none"> Providing information to work team about company OHS program, procedures and policies/guidelines Participating in implementation of OSH procedures and policies/guidelines Training of team members and advice on OSH standards and procedures Implementation of procedures for maintaining OSH-related records 	<ul style="list-style-type: none"> Oral questions Written tests Portfolio of evidence Third party report

Suggested Methods of Instructions

- Assignments
- Discussion
- Q&A
- Role play
- Viewing of related videos

Recommended Resources

- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE) e.g.
 - Mask
 - Face mask/shield
 - Safety boots
 - Safety harness
 - Arm/Hand guard, gloves
 - Eye protection (goggles, shield)
 - Hearing protection (ear muffs, ear plugs)
 - Hair Net/cap/bonnet
 - Hard hat

- Face protection (mask, shield)
- Apron/Gown/coverall/jump suit
- Anti-static suits
- High-visibility reflective vest

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COMMON UNITS OF LEARNING

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GENERAL BIOLOGY

UNIT CODE: MED/CU/NUD/CC/01/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: demonstrate knowledge of general biology

Duration of Unit: 45 hours

UNIT DESCRIPTION

This unit specifies the competencies required to demonstrate knowledge of general biology. It involves demonstrating the knowledge of terminologies in general biology, types of plant and animal cells and tissues, plant anatomy and physiology, structures of a plant and their functions, knowledge of human body systems, their structures, functions and associated disorders. It also entails demonstrating knowledge of macromolecules and their metabolism, knowledge of enzymes and hormones and knowledge of biochemistry of macronutrient.

Summary of Learning Outcomes

- 1 Demonstrate the knowledge of cell and cell division
- 2 Demonstrate knowledge of types of tissues and their location
- 3 Demonstrate the knowledge of the human body systems, their structures, functions and associated disorders.
- 4 Demonstrate the knowledge of the human body systems, their structures, functions and associated disorders.
- 5 Demonstrate the knowledge of macromolecules and their metabolism
- 6 Demonstrate the knowledge of enzymes and hormones
- 7 Demonstrate the knowledge of biochemistry of macronutrient

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Demonstrate the knowledge of terminologies in general biology	<ul style="list-style-type: none">• Definition of biology and general biology• Branches in general biology• Basics of plant and human cell	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews
2. Demonstrate knowledge of types of plant and animal cells and tissues	<ul style="list-style-type: none">• Types of plant and animal cells and tissues• Structures of plant and animal cells• Roles of plant and animal	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews

Learning Outcome	Content	Suggested Assessment Methods
	organelles <ul style="list-style-type: none"> • Plant and animal cell metabolism and reproduction 	
3. Demonstrate the knowledge of the plant anatomy and physiology. structures of a plant and their functions	<ul style="list-style-type: none"> • Identification and description of plants with nutrition and health potency. • Anatomy and physiology of the identified plants • Classification of the identified plants into herbs, spices and condiments. 	<ul style="list-style-type: none"> •
4. Demonstrate the knowledge of the human body systems, their structures, functions and associated disorders.	<ul style="list-style-type: none"> • The components of the human body systems • Relevant functions of the body s systems • Relevant principles of the body s systems to performance of therapy treatment • The nervous system • The cardiovascular system • The respiratory system • The renal system • Musculoskeletal system • Reproductive system • Skin • Gastro intestinal system • Central nervous system • Endocrine system • Special senses 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
5. Demonstrate the knowledge of macromolecules and their metabolism	<ul style="list-style-type: none"> • Meaning of macromolecules and metatabolism • Types of macro molecules and metabolism • The structural elements of macromolecules and their interaction with other small molecules • The hierarchy of molecular organization of cells 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Learning Outcome	Content	Suggested Assessment Methods
6. Demonstrate the knowledge of enzymes and hormones	<ul style="list-style-type: none"> • Nature of enzymes and the process of enzyme catalysis • Biochemical reactions which micro and macro molecules undergo within the organisms • The structure of enzymes and their roles in digestion • The relationship among holoenzymes, apoenzymes and cofactors • The general mechanisms by which enzymes catalyze reactions • Properties of enzymes • Role of enzyme in food processing • Isoenzymes and zymogens • Functions of hormones in homoeostasis • Mechanisms in hormonal physiology 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
7. Demonstrate the knowledge of biochemistry of macronutrient	<ul style="list-style-type: none"> • Meaning of terms in biochemistry of macronutrients • Biochemistry of carbohydrates; structure, properties and classification of carbohydrates, carbohydrate metabolism, energy path ways and metabolic disorders of carbohydrate metabolism • Biochemistry of proteins; structure, properties and classification of proteins, protein metabolism, metabolic path ways and metabolic disorders of protein metabolism • Biochemistry of lipids; structure, properties and classification of lipids, lipid metabolism, metabolic path ways and 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Learning Outcome	Content	Suggested Assessment Methods
	metabolic disorders of lipid metabolism	

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction

Recommended Resources

- Microscopes and slides
- Staining reagents
- Skills lab

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FOOD MICROBIOLOGY

UNIT CODE: MED/CU/NUD/CC/02/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: demonstrate the knowledge of food microbiological techniques

Duration of Unit: 40 hours

UNIT DESCRIPTION

This unit specifies the competencies required to demonstrate knowledge of food microbiology techniques. It involves demonstrating the knowledge of microorganisms in foods and food environments, physiology, genetics, biochemistry and behaviour of microorganisms, microbiology of food fermentation, microbiological aspects of food safety, and methods of detection, identification and enumeration of food microorganisms.

Summary of Learning Outcomes

- 1 Demonstrate the knowledge of microorganisms in food and food environment
- 2 Demonstrate the knowledge of physiology, genetics, biochemistry and behaviour of food microorganisms
- 3 Demonstrate the knowledge of microbiology of food fermentation
- 4 Demonstrate the knowledge of microbiological aspects of food safety
- 5 Demonstrate the knowledge on methods of detection, identification and enumeration of food microorganism

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Demonstrate the knowledge of microorganisms in food and food environment	<ul style="list-style-type: none">• Meaning of terms in food microbiology• Basic types of food microorganism; bacteria, viruses, fungi, protozoa, algae• Roles of microorganisms in food safety and spoilage• Microscopy; structure, use care and maintenance	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews• Practicals
2. Demonstrate the knowledge of physiology, genetics, biochemistry and behaviour of food	<ul style="list-style-type: none">• Physiology, genetics and biochemistry of microorganisms; bacteria, fungi, viruses, protozoa, algae	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning

Learning Outcome	Content	Suggested Assessment Methods
microorganisms	<ul style="list-style-type: none"> • Bacterial anatomy: Shapes and arrangement of bacteria, Cell cytology, Bacterial cell arrangement Sporulation, Cocci, bacillus , spiral chains • Factors that influence growth and activity of food microorganism; temperature, time, PH, moisture, water activity The influence of temperature on bacterial physiology and nutrition • The growth pattern of a typical bacterial colony • The gram stain method and AFB test 	<ul style="list-style-type: none"> • Interviews
3. Demonstrate the knowledge on microbiology of food fermentation	<ul style="list-style-type: none"> • Meaning of terms in food fermentation, importance of food fermentation • Microorganisms in fermentation process • Fermentation processes in different types of food; dairy products, grains, meats, fruits and vegetable and bevarages 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews • Practicals in food labs
4. Demonstrate the knowledge of microbiological aspects of food safety	<ul style="list-style-type: none"> • Meaning of terms in microbial aspects in food safety • Microbial aspects of food safety: during production, processing and labelling, food handling distribution and storage, food preparation and use 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews • Practicals
5. Demonstrate the knowledge on methods of detection, identification and enumeration of food microorganism	<ul style="list-style-type: none"> • Introduction to basic laboratory equipment and materials • Methods of detetction, identification and enumeration of microorganisms: staining, culturing, observation of morphology etc • 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews • Practicals

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction

Recommended Resources

- Labs
- Cold chains
- Vaccines
- Stationery
- Staining reagents
- Culture systems

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FOOD PROCESSING, SAFETY AND HYGIENE

UNIT CODE: MED/CU/NUD/CR/06/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: manage food processing, safety and hygiene

Duration of Unit: 45 hours

Unit Description

This unit specifies the competencies required to manage food processing, safety and hygiene. It involves identifying and describing terminologies in food processing, safety and hygiene, describing principles in food processing, preservation and safety and demonstrating knowledge in food quality, safety and hygiene.

Summary of Learning Outcomes

1. Identify and describe terminologies in food processing, safety and hygiene
2. Describe principles in food processing, preservation and safety
3. Demonstrate knowledge in food quality, safety and hygiene

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify and describe terminologies in food processing, safety and hygiene	<ul style="list-style-type: none">• Meaning of terms in food processing, preservation and food safety• Aims and importance of food processing, preservation and safety	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews• Practicals
2. Describe principles in food processing, preservation and safety	<ul style="list-style-type: none">• Principles in food processing, heat transfer, fluid flow, mass transfer, mixing, size adjustment separation• Methods of food processing and preservation; thermal treatment, water removal, dehydration, temperature reduction, food irradiation, protective packaging• Effects of food processing and preservation techniques on food storage sensory and nutrition properties of food• Traditional and modern methods in	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews• Practicals

Learning Outcome	Content	Suggested Assessment Methods
	food processing and preservation for different food categories	
3. Demonstrate knowledge in food quality, safety and hygiene	<ul style="list-style-type: none"> • Quality control of food and food safety during processing; from farm to fork • HACCP; principles of HACCP, developing HACCP plan, implementation and management of HACCP plan • Food safety; food poisoning, food borne illnesses, causes and prevention • Food hygiene: food handlers hygiene, food hygiene, kitchen design and surface layout, food premises and equipment hygiene, water system ventilation and waste management 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews • practicals

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction
- Role play

Recommended Resources

- WHO guidelines
- MOH
- Ministry of Education
- Skills lab
- Use of LCDs, video clips, charts and other teaching aids
- Invitation of competent expertise
- Computers with internet
- Library and resource centre

CORE UNITS OF LEARNING

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NUTRITION IN EMERGENCY

UNIT CODE: MED/CU/NUD/CR/01/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency:

Duration of Unit: 56 hours

Unit Description

This unit specifies the competencies required to apply nutrition in emergency. It involves conducting rapid assessment on the nutrition situation, selecting food and nutrition emergency responses and plan, providing nutrition and health interventions and monitoring implementation of intervention. It also includes documenting nutritional intervention during emergencies and demonstrating knowledge on food and nutrition security in emergencies.

Summary of Learning Outcomes

- 1 Conduct rapid assessment on the nutrition situation
- 2 Select food and nutrition emergency responses and plan
- 3 Provide nutrition and health interventions
- 4 Monitor implementation of interventions
- 5 Document nutritional intervention during emergencies

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct rapid assessment on the nutrition situation during emergency	<ul style="list-style-type: none">• Meaning of terms; nutrition in emergency, disaster, rapid nutrition assessment, emergency mitigation• Nutrition project cycle in emergency; rapid assessment; anthropometric assessment and interpretation, needs assessment in emergency• Causes/sources of emergency	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews
2. Select food and nutrition emergency responses and plan	<ul style="list-style-type: none">• Types of emergency response• Emergency response cycle• Stakeholders and their roles in in emergency Response	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews

Learning Outcome	Content	Suggested Assessment Methods
3. Provide nutrition and health interventions	<ul style="list-style-type: none"> • Prioritizing nutrition and health intervention • Nutrition and health interventions in emergency 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
4. Monitor implementation of interventions	<ul style="list-style-type: none"> • Monitoring and evaluation of nutrition and health interventions in emergency • Implementation of interventions/project implementation during emergency 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
5. Document nutritional intervention during emergencies	<ul style="list-style-type: none"> • Nutrition and health interventions in emergency; feeding programs, nutrition education and counselling, supplementary feeding, therapeutic feeding, WASH, medical nutrition therapies, mosquito nets etc 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
6. Demonstrate knowledge on food and nutrition security in emergency	<ul style="list-style-type: none"> • Meaning of food and nutrition security in emergency • Assessment of food and nutrition security in emergency • Component/pillars of food and nutrition security; food availability, food accessibility, food sustainability, food and nutrient utilization • Food and nutrition security policies • Mitigation of food and nutrition insecurity in emergencies • Food and nutrition surveillance systems in emergency 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Suggested Methods of Instruction

- Projects

- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction
- Role playing

Recommended Resources

- Computers with internet
- Library and resource centre
- WHO guidelines
- MOH
- Ministry of Education
- Skills lab
- Use of LCDs, video clips, charts and other teaching aids
- Invitation of competent expertise

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PRINCIPLES OF HUMAN NUTRITION

UNIT CODE: MED/CU/NUD/CR/02/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: apply principles of human nutrition

Duration of Unit: 70 hours

Unit Description

This unit specifies the competencies required to apply principles of human nutrition. It involves classifying different nutrients, demonstrating understanding of food metabolism and understanding of the role of nutrition in disease occurrence and management. It also includes identifying factors that place client at nutritional risk and undertaking nutrition monitoring.

Summary of Learning Outcomes

1. Classify different nutrients
2. Demonstrate understanding of food metabolism
3. Understand role of nutrition in disease occurrence and management
4. Identify factors that place client at nutritional risk
5. Undertake nutrition monitoring

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Classify different nutrients	<ul style="list-style-type: none">• Meaning of terms; human nutrition, food, nutrients, nutrition• Classes of nutrients: macronutrients, micronutrients• Classes of macronutrients• Classes of micronutrients• Food sources of each macronutrients• Food sources of each micronutrients• Physical and chemical characteristics/properties of nutrients	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews
2. Demonstrate understanding of food metabolism	<ul style="list-style-type: none">• Digestion of nutrients; mechanical and chemical nutrient digestion• Nutrient metabolism;	<ul style="list-style-type: none">• Written .• Observation• Third party

Learning Outcome	Content	Suggested Assessment Methods
	carbohydrates, proteins, fats, minerals and vitamins <ul style="list-style-type: none"> • Water and electrolytes 	report <ul style="list-style-type: none"> • Oral questioning • Interviews
3. Demonstrate knowledge of nutrition requirements through the life cycle	<ul style="list-style-type: none"> • Nutrition during pregnancy • Nutrition during lactation • Nutrition during infancy and childhood • Nutrition in adolescence • Nutrition in adulthood • Nutrition for the olderpersons 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
4. Understand role of nutrition in disease occurrence and management	<ul style="list-style-type: none"> • Energy balance • Associated deficiency disorders of macronutrients • Associated deficiency disorders of micronutrients • Deficiencies of public health concerns • Interventions to address malnutrition and micronutrient deficiencies 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
5. Identify factors that place client at nutritional risk	<ul style="list-style-type: none"> • Determinants of malnutrition; conceptual framework on the causes of malnutrition 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction
- Role playing

Recommended Resources

- Computers with internet
- Library and resource centre
- WHO guidelines
- MOH
- UNICEF
- Ministry of Education
- Skills lab
- Use of LCDs, video clips, charts and other teaching aids
- Invitation of competent expertise

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NUTRITION CARE PROCESS

UNIT CODE: MED/CU/NUD/CR/03/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: conduct nutrition care process

Duration of Unit: 100 hours

Unit Description

This unit specifies the competencies required to conduct nutrition care process. It involves carrying out nutrition assessment, conducting nutrition diagnosis and prescriptions for nutrition interventions, conducting nutrition monitoring and evaluation for the entire nutrition care process.

Summary of Learning Outcomes

- 1 Carry out anthropometric assessments
- 2 Analyze biochemical laboratory results
- 3 Conduct clinical and physical assessments
- 4 Conduct dietary assessment
- 5 Carry out socio economic evaluation
- 6 Conduct functionality assessment

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Carry out Nutrition assessment	<ul style="list-style-type: none">• Anthropometric assessment: Anthropometric measurements, tools for measurements and interpretations of measurements based on reference standards: MUAC waist circumference and waist hip ratio, head circumference, skin fold thickness, edema, weight, height (weight for height/wasting, weight for age/underweight and height for age/stunting, BMI for age and BMI) body fat composition and distribution and bone densities,• Biochemical assessment: Biochemical indicators/biomarker, methods for biochemical analysis, interpretation of	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews

Learning Outcome	Content	Suggested Assessment Methods
	<p>various indicators as per cut offs, influence of errors on various various biomarkers eg fasting blood sugar Vs random, lipid profile</p> <ul style="list-style-type: none"> • Clinical and physical assessment: Patient medical history: refereral notes, treatment sheet, nurses cardex and patients files, Physical observation of the body, hais, nails, eyes, lips, skin, prominence of bones for a clue to a nutrition related condition or deficiencies eg wasting, anemia, dehydration, Procedures for conducting and documenting physical examination eg, paleness of the palm and duration for refill upon pressing the palm, color, texture and distribuutin of the hair, paleness of the conjunctiva • Dietary assessment: Dietary method: 24-hour recal, food frequency, food diery and food weighing, Roles of dietary assessment methods, Tools for dietary assessment: 24-hour recall questionnaire, food frequency questionnaire, food diaries template, Food and nutrient analysis indicators and interpretation: analysis of 24-hour recall data, food frequency data, food diary data, Interpreting results of the dietary intakes using varipous cut offs eg minimum food frequency, number of meals in 24-hours, diatary diversity, minimum acceptable diets and dietary diversity for women • Socio-economic assessment: Establishing patients demographic and socioeconomic status: patients history and profile as per the patients file, social workers file 	

Learning Outcome	Content	Suggested Assessment Methods
	<ul style="list-style-type: none"> • Functionality assessment: Methods for assessing physical activity levels:eg hand grip, ability to self feed, ambulant, wheel chair bond, Categories and cut offs of physical activity eg sedentary, light activity, moderate activity, high activity and highly active 	
2. Conduct nutrition diagnosis	<ul style="list-style-type: none"> • Determine underlying medical condition as per the patients file • Determine nutrition problem: Labelling and classifying the specific nutrition problem • Explore etiology of the conditions: Determine the causes and risk factors of the identified problems • Assess signs and symptoms of the problems: Describe signs and symptoms of the nutrition related problems and conditions • Make nutrition diagnosis: Singling out specific macro and micronutrient deficiencies and other nutrition related conditions such as type II diabetes melitus 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
3. Prescription of appropriate diets and other nutrition intervention	<ul style="list-style-type: none"> • Priorotize nutrition needs: Critical nutrition deficiencies and conditions are managed/addressed eg management of malnututrition/nutritient deficiencies and stabilization of other key hemodynamics • Select appropriate nutrition intervention: Identifying suitable nutrition interventions for various nutrition deficiencies and conditions eg nutrition education and counselling, food by prescription, therapeutic feeding, supplementary feeding, micronutrient supplementation, enteral and parenteral nutrition • Design diet plan: Diet perescriptions and 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Learning Outcome	Content	Suggested Assessment Methods
	<p>description of modified diets to include clear liquid diets, full liquid diet, light/soft diets, high calorie diet, calorie restricted diet, high protein diet, low protein diet, sodium restricted diets, fat restricted diets, fiber restricted diets, high fiber diets, bland diets, elimination of suspect foods for allergies, frequency of feeding,</p> <ul style="list-style-type: none"> • Implement the designed care plan: Determination of energy/caloric needs of the patient/client using relevant equations such as Harris Benedict: Nutrition counselling and guide on thw modified doets, documentation 	
4. Conduct monitoring of the interventions	<ul style="list-style-type: none"> • Carryout daily monitoring of the patients uptake and response to the interventions and nutrition prescriptions and documentation • 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
5. Conduct evaluation of the nutrion care process	<ul style="list-style-type: none"> • Aseess the outcomes of interventions and the entire nutrion care process indicators for correcting the diagnosed nutrition problems 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction
- Role playing

Recommended Resources

- Computers with internet
- Library and resource centre
- WHO guidelines

- MOH
- Ministry of Education
- Skills lab
- Use of LCDs, video clips, charts and other teaching aids
- Invitation of competent expertise

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MEAL PLANNING AND MANAGEMENT

UNIT CODE: MED/CU/NUD/CR/04/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: plan and manage meals

Duration of Unit: 90 hours

Unit Description

This unit specifies the competencies required to plan and manage meals. It involves determining client nutritional needs, assisting client with meal selection, formulating diet recipes and menu and preparing formulated meals. It also includes assessing food safety and hygiene and documenting meal planning and management.

Summary of Learning Outcomes

1. Determine client nutritional needs
2. Assist client with meal selection
3. Formulate diet recipes and menu
4. Prepare formulated meals
5. Assess food safety and hygiene
6. Document meal planning and management

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Determine client nutritional needs	<ul style="list-style-type: none">• Meaning of terms Meal planning, meal management, meal service,• Advantages of meal planning,• Factors to consider when planning meals,• Quality and quantity control in meal planning• Diet planning principles; adequacy, variety, energy dense nutrient density, moderation and energy density• Diet planning tools; food pyramid, food exchange list, food composition table, reference manuals, RDI, RDA etc•	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews

Learning Outcome	Content	Suggested Assessment Methods
2. Assist client with meal selection	<ul style="list-style-type: none"> • Factors influencing food choices • Factors to consider when planning meals for various groups: Family (infants and children, pre-schoolers, pre-adolescents, adolescents, adults, older person, vulnerable group, invalids, pregnant and lactating women) • Planning meals for institutions/schools, prisons, cooperatives, organized groups, occasions, • Kitchen and food service equipment 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
3. Formulate diet recipes and menu	<ul style="list-style-type: none"> • Menu planning, types of menu, table d'hôte, à la carte • Recipe development • Menu costing (formulation of budget/shopping list/price list, costing sheet) 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
4. Prepare formulated meals	<ul style="list-style-type: none"> • Categories of meal courses • Production of various foods within the courses, breads and starch, soups, vegetables, fruits, proteins, juices, cakes, snacks etc • Food service; types of food service 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews • Practicals
5. Assess food safety and hygiene	<ul style="list-style-type: none"> • Personal hygiene; own grooming, dress code, head gear, protective gear • Food hygiene • Kitchen hygiene and layout • Environmental hygiene 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
6. Document meal planning and management	<ul style="list-style-type: none"> • Record keeping and inventory 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction
- Role play

Recommended Resources

- WHO guidelines
- MOH
- Ministry of Education
- Skills lab
- Use of LCDs, video clips, charts and other teaching aids
- Invitation of competent expertise
- Computers with internet
- Library and resource centre

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COMMUNITY HEALTH AND NUTRITION EDUCATION

UNIT CODE: MED/CU/NUD/CR/05/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: conduct community health and nutrition education and counseling.

Duration of Unit: 56 hours

Unit Description

This unit specifies the competencies required to conduct community health and nutrition education and counseling. It involves assessing concepts of counselling, evaluating patients' response to nutritional care plan, exploring dietary modifications and supporting the client with acceptance of nutrition care plan. It also includes demonstrating knowledge in nutrition during Infancy (0-24 months).

Summary of Learning Outcomes

- 1 Asses concepts of counselling
- 2 Evaluate patients' response to nutritional care plan
- 3 Explore dietary modifications
- 4 Support the client with acceptance of nutrition care plan

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Asses concepts of counselling	<ul style="list-style-type: none"> • Meaning of nutrition education and counselling • Counselling environment and requirements • Importance of nutrition counselling • Counselling techniques eg empathy etc • Steps in nutrition counselling • Tools and items used in nutrition education and counselling eg food models, charts • Key messages for nutrition education and counselling 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews • Charts • Food models
2. Evaluate patients' response to nutritional care plan	<ul style="list-style-type: none"> • Students to be taken through counselling steps practically and produce/construct counselling 	<ul style="list-style-type: none"> • Written . • Observation

Learning Outcome	Content	Suggested Assessment Methods
	cards <ul style="list-style-type: none"> • Follow up, appointment cards/TCAs 	<ul style="list-style-type: none"> • Third party report • Oral questioning • Interviews • Role playing
3. Explore dietary modifications	<ul style="list-style-type: none"> • Nutrition counselling in different disease state • Use of counselling cards and other counselling aids as appropriate • Specific modifications 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
4. Support the client with acceptance of nutrition care plan	<ul style="list-style-type: none"> • Preparation of food and meal plans for the client • Follow up on the implementation and uptake of food and meal plans as implemented by the client , use of TCAs • Provision of dietary brochures and other education materials for the patient to support chnge and uptake of the modified diets 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
7. Provide nutrition education on infant and young child nutrition and care	<ul style="list-style-type: none"> • Meaning of terms • Nutrition requirements dring 0-6 months;exclusive breast feeding as per WHO/UNICEF recommendations, developmental milestone and immunization as per WHO/UNICEF recommendation • Breast feeding in vulnerable situations; HIV and AIDS, low birth weight and pre-term babies • Initiatives to promote good breast feeding practices • Nutrition requirements and feeding of 6 months to 8 monts baby; MMF, DD, MAD, breast feeding on demand responsive feeding, developmental milestone and immunization as per WHO/UNICEF 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews

Learning Outcome	Content	Suggested Assessment Methods
	<p>recommendation</p> <ul style="list-style-type: none"> • Nutrition requirements and feeding of 9- months to 11 months baby MMF, DD, MAD, breast feeding on demand responsive feeding, developmental milestone and immunization as per WHO/UNICEF recommendation • Nutrition requirements and feeding of 12- months to 24 months baby MMF, DD, MAD, breast feeding on demand responsive feeding, developmental milestone and immunization as per WHO/UNICEF recommendation 	

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction
- Role play

Recommended Resources

- WHO guidelines
- MOH
- Ministry of Education
- Skills lab
- Use of LCDs, video clips, charts and other teaching aids
- Invitation of competent expertise
- Computers with internet
- Library and resource centre

PRINCIPLES OF DIETETICS

UNIT CODE: MED/CU/NUD/CR/06/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: apply dietetic principles

Duration of Unit: 100 hours

Unit Description

This unit specifies the competencies required apply dietetic principles. It involves demonstrating understanding of modified diets in the management of non-communicable and communicable diseases, management of malnutrition and micronutrient deficiencies of public health concerns, enteral and parenteral nutrition, surgery, trauma and burns management and palliative and hospice care. It also includes demonstrating understanding of nutrient-drug interactions.

Summary of Learning Outcomes

1. Identify terminologies in dietetics
2. Demonstrate understanding in diet modification for different conditions and diseases
3. Demonstrate understanding in enteral and parenteral nutrition
4. Demonstrate understanding in nutritional management of surgery, trauma, and burn
5. Demonstrate understanding of palliative and hospice care
6. Demonstrate understanding in nutrient drug interactions

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify terminologies in dietetics	<ul style="list-style-type: none">• Terminologies under dietetics• Description of normal and modified diets• Factors to consider when modifying a diet• Therapeutic modification of normal diet: modification in consistency; clear liquid diet, full liquid diet, thick liquid diet, blenderized/soft or light, their purpose, characteristics and indication.	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews
2. Demonstrate understanding of modified diets in the management of non-	<ul style="list-style-type: none">• Diet modifications in the management of CVDs, renal disorders, liver and gallbladder disorders, diabetes mellitus, hyperthyroidism, hypothyroidism, hyperkalemia,	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews

Learning Outcome	Content	Suggested Assessment Methods
communicable and communicable diseases	ketoacidosis, gout, arthritis and mental disorders purpose, characteristics and indication <ul style="list-style-type: none"> • Diet modification in the management of diarrhea, constipation, nausea and vomiting, hiatal hernia, diverticular disease, typhoid, malaria, burns, HIV and AIDS, cancers, food allergy and intolerances • Practical Production of modified diets 	
Demonstrate understanding in the management of malnutrition and micronutrient deficiencies of public health concerns	<ul style="list-style-type: none"> • Management of SAM, MAM, • Management of overweight and other eating disorders such as obesity, anorexia nervosa, bulimia nervosa and binge eating • Roles of nutrient supplements, and fortified foods in the management of micronutrient deficiencies of public health concerns 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
4. Demonstrate understanding in enteral nutrition	<ul style="list-style-type: none"> • Meaning of terms in enteral nutrition indication for enteral nutrition, equipments used in enteral nutrition • Tube feeding/enteral nutrition routes: nasogastric, orogastric, nasoduodenal, nasojejunal, esophagostomy, gastrostomy and jejunostomy, tube feeding instructions, complications of tube feeding • Types of enteral formulas; standard formula, hydrolyzed formulas, enteral formula classifications 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews
5. Demonstrate understanding in parenteral nutrition	<ul style="list-style-type: none"> • Meaning of terms in parenteral nutrition indication for parenteral nutrition, equipments used in parenteral nutrition • Parenteral nutrition routes; Total Parenteral Nutrition (TPN), Peripheral Parenteral Nutrition (PPN) • Parenteral nutrition formulas; indications of tube feeding 	<ul style="list-style-type: none"> • Written . • Observation • Third party report • Oral questioning • Interviews • Practicals

Learning Outcome	Content	Suggested Assessment Methods
	<ul style="list-style-type: none"> Administration of parenteral nutrition: all in one single bottle, chamber bags Copmlications of parenteral nutrition and their nutritional management 	
6. Demonstrate understanding in nutritional management of surgery, trauma, and burn	<ul style="list-style-type: none"> Meaning of terms in surgery, trauma and burns Burns; causes, classification and nutrition implications of burns, special concerns in burns, aims in nutrition management and dietary management based on TBSA/degree of burn Surgery; nutrition implications of surgery, pre-surgery nutrition, post surgery nutrition, nutrition support in various surgical conditions, rehabilitation post surgery 	<ul style="list-style-type: none"> Written . Observation Third party report Oral questioning Interviews
7. Demonstrate understanding of palliative and hospice care	<ul style="list-style-type: none"> Meaning of terms in palliative and hospice care Nutrition support during palliative and hospice care. 	<ul style="list-style-type: none"> Written . Observation Third party report Oral questioning Interviews
8. Demonstrate understanding in nutrient drug interactions	<ul style="list-style-type: none"> Meaning of terms in nutritint drug interactions Specific drug nutrient interactions with nutrition implications 	<ul style="list-style-type: none"> Written . Observation Third party report Oral questioning Interviews

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction

Recommended Resources

- WHO guidelines
- MOH
- Ministry of Education
- Skills lab

- Use of LCDs, video clips, charts and other teaching aids
- Invitation of competent expertise
- Computers with internet
- Library and resource centre

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NUTRITION ASSESSMENT AND SURVEILLANCE

UNIT CODE: MED/CU/NUD/CR/07/5/A/A

Relationship to Occupational Standards

This unit addresses the unit of competency: conduct nutrition assessment and surveillance

Duration of Unit: 56 hours

Unit Description

This unit specifies the competencies required to conduct nutrition assessment and surveillance. It involves conducting anthropometric assessment, interpreting biochemical assessment result, conducting clinical examination and dietary surveys and conducting nutrition surveillance.

Summary of Learning Outcomes

- 1 Conduct anthropometric assessment
- 2 Interpret biochemical assessment result
- 3 Conduct clinical examination
- 4 Conduct dietary surveys
- 5 Conduct nutrition surveillance

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct dietary surveys	<ul style="list-style-type: none">• Meaning of nutrition and dietary surveys• Importance of nutrition surveys• Methods of conducting nutrition surveys• Indicators for nutrition surveys• Steps in conducting nutrition surveys (nutrition survey designs, sampling methods, determining sampling size, data collection tools etc)• Data analysis and reporting	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews
2. Conduct nutrition surveillance	<ul style="list-style-type: none">• Meaning of surveillance• Surveillance systems• Importance of surveillance• Nutrition information systems	<ul style="list-style-type: none">• Written .• Observation• Third party report• Oral questioning• Interviews

Suggested Methods of Instruction

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction

Recommended Resources

- Computers with internet
- Library and resource centre
- WHO guidelines
- MOH
- Ministry of Education
- Skills lab
- Use of LCDs, video clips, charts and other teaching aids
- Invitation of competent expertise

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