DEMONSTRATE KNOWLEDGE OF FOOD MICROBIOLOGY TECHNIQUES
UNIT CODE: MED/OS/PM/CC/03/6/A

UNIT DESCRIPTION

This unit specifies the competencies required to apply microbiological 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, methods of detection, identification and enumeration of food microorganisms.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the **key outcomes** which make up **workplace function**.	**PERFORMANCE CRITERIA** These are **assessable** statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Demonstrate the knowledge of microorganisms in food and food environment	1. 1 Terminologies in in food microbiology are identified and described as per resource materials 1. 2Basic types of food microorganism are identified and described as per resource materials 1. 3Roles of microorganisms in food safety and spoilage are identified and described as per resource materials 1. 4 Use of microscope are applied as per workplace guidelines
2. Demonstrate the knowledge of physiology, genetics, biochemistry and behaviour of food microorganisms	2.1 Physiology, genetics and biochemistry of microorganisms are identified and described as per resource materials 2.2 Bacterial anatomy is described as per resource materials 2.3 Factors that influence growth and activity of food microorganism are identified and described as per resource materials 2.4 The growth pattern of a typical bacterial colony is described as per resource materials 2.5 The gram stain method and AFB test are demonstrated and described as per resource materials

3. Demonstrate the knowledge on microbiology of food fermentation	3.1 Terminologies in food fermentation and its importance are identified and described as per resource materials 3.2 Microorganisms in fermentation process are identified and described as per resource materials 3.3 Fermentation processes in different types of food are identified and described as per resource materials
4. Demonstrate the knowledge of microbiological aspects of food safety	4.1 Terminologies in microbial aspects in food safety are identified and described as per resource materials 4.2 Microbial aspects of food safety during production, processing and labelling, food handling distribution and storage, food preparation and use are identified and described as per resource materials
5. Demonstrate the knowledge on methods of detection, identification and enumeration of food microorganism	5.1 Terminologies in basic laboratory equipment and materials are identified and described as per resource materials 5.2 Methods of detection, identification and enumeration of microorganisms are identified and described as per resource materials

RANGE

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

Variables	**Range** **May include but not limited to:**
1. Types of immunity	• Innate • Adaptive

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Organizing skills
- Analytical skills
- Negotiation skills
- Interpersonal skills
- Communication skills
- Evaluation skills
- Problem solving
- Critical thinking

Required Knowledge

The individual needs to demonstrate knowledge of:

- The role of microbiology in pharmacy and related biomedical sciences
- The nature and appropriate environmental conditions for survival of microorganisms
- Diseases and physiological disorders associated with microorganisms
- Appropriate treatment and management of the various diseases caused by micro organisms
- Various laboratory tests in the diagnosis of diseases

EVIDENCE GUIDE

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

1. Critical aspects	The assessment requires evidence that the candidate: 1. Demonstrated the knowledge of microorganisms in food and food environment 2. Demonstrated the knowledge of physiology, genetics, biochemistry and behaviour of food microorganisms 3. Demonstrated the knowledge on microbiology of food fermentation 4. Demonstrated the knowledge of microbiological aspects of food safety 5. Demonstrated the knowledge on methods of detection, identification and enumeration of food microorganism
2. Resource Implications	The following resources must be provided:

	2.1 Functional Pharmaceutical technology system
3. Methods of Assessment	Competency may be assessed through: 3.1 Written tests 3.2 Third party reports 3.3 Oral questioning 3.4 Interview 3.5 Observation
4. Context of Assessment	Assessment could be conducted: • On-the-job • Off-the–job • During industrial attachment
5. Guidance information for assessment	Holistic assessment with related units in the sector