

Semester	5		
Course Code:	MIBI 31522		
Course Name:	Laboratory aspects of Food Microbiology, Food Processing and Preservation		
Credit Value:	2		
Core/Optional	Core		
Hourly Breakdown	Theory	Practical	Independent Learning
	-	70 hrs	30 hrs
Course Aim/Intended Learning Outcomes:			
Upon successful completion of this course student will be able to;			
<ul style="list-style-type: none"> • Carry out microbiological testing to ensure food safety, • Follow food quality and safety standards and meet the required criteria, • Analyze physicochemical parameters, including nutritional quality, of selected food items, • Analyze the basic constituents in food and • Design a small-scale food processing industry to have a good quality final product. 			
Course Content:			
Food Microbiology:			
<i>SLS methods for the detection of general hygiene:</i> APC for bacteria and yeast and molds. <i>Quality Assessment of Raw milk:</i> Dye reduction tests. Examination for proteolytic psychrotrophs.			
<i>Quality Assessment of Dairy Products:</i> SLS methods for the detection of indicator microorganisms in Pasteurized milk, Determination of mesophilic and thermophilic aerobic spore counts in UHT milk, Spoilage organisms in cultured /fermented dairy products. <i>Safety Assessment of meat Products:</i> <i>Salmonella</i> spp. and <i>Staphylococcus aureus</i> in frozen poultry meat products, Spoilage flora in comminuted meat. <i>Safety assessment of fresh fish:</i> Detection of <i>Vibrio parahaemolyticus</i> and <i>V. cholera</i> . <i>Safety Assessment of processed fish:</i> Commercial sterility of canned foods. Safety assessment of drinking water. Environmental hygienic monitoring tests.			
Mini project: Microbial Activities in Fermented Food			
Application of Food quality management systems			
Food Processing and Preservation:			
<i>Determination of Nutrients and of other quality parameters of food:</i> Determination of moisture, minerals, crude fat, crude protein, crude fiber and carbohydrate, Determination of reducing sugar- Lane and Eynon method, Identification of colouring matter in food, Determination of preservatives in food- Total sulphurdioxide and benzoic contents. <i>Analysis of Cereals /Root crops and based products:</i> Extraction of starch from cereals/ root and tuber crop, Identification of starch granules from different cereals/root crops and properties, Separation of gluten, Fermented cereal products (Bread)- Aeration of cereal dough by yeast. <i>Fermented milk products:</i> Yoghurt and spray dried milk. <i>Processing of milk and milk products:</i> Pasteurized, canned and UHT milk products. <i>Principles of processing Fruits and vegetable products:</i> Processing of canned and bottles products, UHT products, Fruit-based products - Jam, cordials and RTS and drying products in a large-scale food manufacturing company.			
Teaching /Learning Methods:			
A combination of laboratory exercises, small group discussions/ presentations, demonstration classes and factory visits.			
Assessment Strategy: Continuous assessment and end of the course unit examination.			
Continuous Assessment		Final Assessment	
10%		90%	
Details:	Theory (%)	Practical (%)	Other (%)
Laboratory Reports: 10%	-	90	-
Recommended Reading:			
<ul style="list-style-type: none"> • Relevant international/ national (ISO and SLS) standards currently used in microbiological analysis of food. • Harrigan, W.F. (1998) <i>Laboratory methods in food and dairy microbiology</i>. Academic Press. • Kirk, R.S. and Sawyer R. (1997) <i>Pearson's Composition and Analysis of Foods</i>. • Nielsen, S. (2017) <i>Food Analysis</i>. 5th Ed. Springer International Publishing. • Nielsen, S. (2017) <i>Food Analysis Laboratory Manual</i>. 3rd Ed. Springer International Publishing. 			