1. **FST 2102 FOOD MICROBIOLOGY II**
2. ***COURSE INSTRUCTORS***
* *Dr. Charles Muyanja [BSc. Food Sc & Tech; M.Sc. Food Sc (Meat and Fish Technology), PhD. Food Sc. ( Food Microbiology/Biotechnology)]*
1. ***COURSE TYPE:***

*Core course for Year 2: BSc. Food Science & Technology.*

1. ***COURSE STRUCTURE***

*Course is 3 credit units (3 CU): 2 lecture hours and 2 practical hours per week for 15 study weeks; [i.e. 30 lecture hours & 30 practical hours equivalent to 45 contact hours].*

1. ***COURSE DESCRIPTION***

*Factors determining types and rates of microbial spoilage of food, control of microbial spoilage; significance of microorganisms in food.*

1. ***COURSE OBJECTIVES***
2. *To discus the importance of microorganisms in foods*
3. *To discuss the microorganisms causing food spoilage*
4. *To describe the methods used to control food spoilage*
5. ***RECOMMENEDED REFERENCES***
	1. *Adams M and Moss M 2008 Food Microbiology RSC Publishing Royal society of chemistry Thomas Graham House, Science Park., Milton, Cambridge CB4 OWF UK*
	2. *Jay J. 1992 Modern Microbiology, Publishing Elevieser London, New York.*
	3. *Harrigan N, W.F and Mccance, M.E. 1976. Laboratory Methods In Food And Dairy Microbiology. Academic Press* *Limited*
6. ***OURSE CONTENT, METHODS OF INSTRUCTION, TOOLS AND***

***EQUIPMENT***

|  |  |  |  |
| --- | --- | --- | --- |
| ***TOPIC*** | ***CONTENT*** | ***METHOD OF INSTRUCTION/ Time allocation******(i.e. contact hours)*** | ***TOOLS/ Equipment needed*** |
| 1. *Introduction*
 | *Growth of microorganisms** *Microbial growth curve*
 | *Interactive lectures discussions* *(2 hr)*  | *White boards/ Flip charts, Markers*  |
| 1. *Factors that influence Microbial Growth*
 | * *Intrinsic factors*
* *Extrinsic factors*
 | *- Group discussion and lectures* *(3 hrs)* *- Group Assignments* |  *White boards / flip chart, Markers* |
| 1. *Microbial growth and spoilage*
 | * 1. *What is spoilage*
	2. *Causes of Food spoilages*
	3. *Conditions for spoilage*
	4. *Categorization of food according to spoilage*
 | *-Interactive lectures* *(3 hr)*  |  *White boards/ flip charts*  |
| 1. *Sources of microorganism contamination and cross contamination*
 | * *Contamination*
* *Importance of contamination*
* *Sources of food contamination*
* *Cross- contamination*
 | *- Student centred interactive lectures* *(4 hrs)*  *Lab Practical (5hrs)* | *White boards/ flip chart Markers, Materials and reagents* |
| 1. *Spoilage of different foods***.**
 | * *Spoilage of milks and milk products*
* *Spoilage of meant and meats (beef, poultry and fish products)*
* *Spoilage of fruits and vegetables*
* *Spoilage of cereal and cereal products*
* *Spoilage of Delicatessen And Related Foods*
* *Spoilage of Sugar*
* *Spoilage of Beers, Wines and Fermented Foods*
* *Spoilage of Canned Foods*
* *Spoilage Of Dehydrated Foods*
 | *-Interactive lectures* *(10hr)* *- Group work/ Assignements* *- Lab practical (5 hrs)* | *White boards / Flip charts/ Materials and reagents* |
|  | *Mid semester evaluation* | *- Mid semester test*  |  *Paper, Pens, Computers, printers* |
| 1. *Food borne illnesses.*
 | * *Food poisoning, food intoxication and food infection*
* *Modes of disease causation*
* *Pathogenic microorganisms, their diseases, symptoms vehicle foods and prevention*
 | *- Interactive lectures* *(4hrs)**-*  | *White boards / Flip charts*  |
| 1. *Control of Microbial Spoilage of Food.*

 | * Physical Methods
* Chemical Treatments
* Biological Methods
 | *-Student centre lectures* *(4 hr)* *Group work* *Lab Practical ( 5hrs)* | *White boards/ flip charts, Markers,**Materials and reagents* |
| 1. *Significance of microrganisms*
 | * *Food preservation*
* *Food processing*
* *Pharmaceuticals*
* *Enzyme Production*
 | *- Interactive lectures* *3hr)**Group work/ assignment* | *White Board/ Flip charts/ markers* |

1. ***SUMMARY OF T IME NEEDED***
* *Lecture hours 30 hr*
* *Practicals 15 hr*
1. ***OVERALL COURSE EVALUATION***
	* *Group work/Assignments 10%*
	* *Practicals, class attendance and participation 10%*
	* *Course tests 20%*
	* *Final exam 60%*