1. **FST 2102 FOOD MICROBIOLOGY II**
2. ***COURSE INSTRUCTORS***

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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***

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| ***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%*