Course No.	Title of Course	Credit Hours
HND-213	Food microbiology	3(2-1)

Learning Outcomes:

- To identify various types of microorganisms on the basis of morphological, cultural and physiological characteristics
- To grasp knowledge about the microbial contamination of foods and factors affecting the growth of microorganisms
- To familiarize students about food borne infections, intoxications and role of probiotics in our daily life

Theory:

Food microbiology: introduction and scope; Important microbial genera in foods: bacteria, mold, yeast and yeast like fungi, viruses general, morphological, cultural and physiological characteristics; Factors affecting the growth and survival of microorganisms in food: intrinsic, extrinsic and implicit; Contamination and spoilage of perishable, semi perishable and stable foods: sources, transmission, microorganisms; Food microbiology and public health: food-borne infections: intoxications; Microbiological risk assessment; Microbiology in food sanitation: food sanitizers and pathogen reduction a case study; Food fermentation; Probiotics in human health.

Practical:

Isolation, identification and characterization of microorganisms: morphology, biochemical; Enumeration of microorganisms in food and water samples (total count, viable count, MPN); Examination of foods for pathogenic organisms (Escherichia coli, Coliform, Salmonella and Listeria monocytogenes); Preparation of fermented and probiotic enriched food products.

Suggested Readings:

1. Adams, M.R. and M.O. Moss. 2006. Food Microbiology. The Royal Society of Chemistry, Cambridge, UK.

2. Adams, M.R., M.O. Moss and P. McClure. 2016. Food Microbiology, 4th ed. Royal Society of Chemistry, Cambridge, UK.

3. Brown, M. and M. Stringer. 2002. Microbiological risk assessment in food

processing. Woodhead Publishing Ltd. Cambridge, UK.

4. Frazier, W.C., D.C. Westhoff and K.N. Vanitha. 2013. Food Microbiology, 5th ed. McGraw-Hill Book Co., New York, USA.

5. Montville, T.J., K.R. Mathews and K.E. Kniel. 2012. Food microbiology: an introduction, 3rd ed. ASM Press, Washington DC, USA. 6. Ray, B. and A. Bhunia. 2013. Fundamentals of Food microbiology, 5th ed. CRC Press, Taylor & Francis Group, Boca Raton, FL, USA.