MFT-104FoodMicrobiology	
Teaching Scheme Lectures:3hrs./weekTutorials: 1hr/week Credits: 4	**ExaminationScheme** InternalAssessment Marks[IAM]:30 [Class Test: 12, Teachers assessment:6,Attendance: 12] EndSemesterMarks[ESM]:70

CourseObjectives:

1. Togiveknowledgeofgeneralcharacteristics,classificationofmicroorganismsand dtheirusesand sourceof contamination infood industry.
2. To give knowledge about factors affecting harmful microbes growth andlethal effects ofvariousfood processingtechniques.
3. Givesknowledgeoffood microbiology, associated health risks and HACCP system.
4. Toimpartknowledgeaboutfood spoiling pathogens and theirinvestigation methiods.
5. Toimpartknowledgeaboutfood fermentation and associated starter cultures.

DetailedSyllabus

MODULE1
Microbiology: Introduction, historical developments in food microbiology; prokaryotes and eukaryotes; classification of microorganisms- a brief account; sources of microorganisms in foods; microbial growth, growth curve; factors affecting growth-intrinsic and extrinsic factors controlling growth of microorganisms, microbiological criteria of foods and their significance.
MODULE2
Effect of food preservatives, heating process, irradiation, low temperature storage, chemical preservatives and high-pressure processing on the microbiology of foods; control of water activity and microbial growth, applications of hurdle technology for controlling microbial growth.

MODULE3
Foods microbiology and public health: food poisoning, types of food poisonings, important features etc; bacterial agents of food borne illness, food poisoning by clostridium, salmonella, E. coli, bacillus, staphylococcus etc.; non-bacterial agents of food borne illness: poisonous algae, and fungi - a brief account, the HACCP system and food safety used in controlling microbiological hazards.
MODULE4
Food spoilage and microbes of milk, meats, fish and various plant products, spoilage of canned foods; Indicators microorganisms, methods of isolation and detection of microorganisms or their products in food; conventional methods; rapid methods (newer techniques) - immunological methods; fluorescent, antibody, radio immunoassay, principles of ELISA, PCR (Polymerized chain reactions).
MODULE5
Foodfermentations:Bacterial,yeastandmoldcultures;singleandmixedcultures,propagation,maintenanceandevaluationofcultures;factorsaffectingactivityofcultures, bacteriophages,residualantibioticsandchemicals.

Suggested Readings	
1.	BranenA.L.andDavidson,P.M.1983.AntimicrobialsinFoods.MarcelDekker,Newyork.
2.	MicrobiologybyPelczar,Smith&Chan.
3.	FoodMicrobiologybyFrazier,5th edtn ,2017.Mc.Graw Hill Education.
4.	FoodmicrobiologybyV. Ramesh, MJPpublishing.2007.

CourseOutcomes:

Aftercompletingthecourse,students willbeable to:

1.Understandthedifferenttypesof microorganismsandtheirstructure.
2.Understandtheeffectofvariousprocessingonfoodmicrobes.
3.Understandaboutthe food microbiology, associated health risks and HACCP system.
4.Understandthedifferentfoodspoilage and its causes with detection techniques too.
5.Understandthemicrobiologyoffermentationandstarter cultures.