6TH SEMESTER

DISCIPLINE SPECIFIC ELECTIVE (DSE)

NAD616D: NUTRITION AND DIETETICS - FOOD MICROBIOLOGY AND SAFETY

(CREDITS: THEORY-4, PRACTICAL-2)

Objectives:

- To acquaint students with knowledge of food spoilage by microorganisms.
- To provide students with knowledge food hazards of microbial origin
- To give students information about safeguards in food production.

Unit-I: Food safety- Basic concepts.

- Food safety and importance of safe food.
- Factors affecting food safety (physical, biological and chemical).
- Microorganisms in foods. (Occurrence, morphology, growth of bacteria).
- Moulds and yeasts - occurrence and morphology.
- Emerging food safety hazard (prions).

Unit-II: Food Spoilage

- Factors responsible for food spoilage.
- Chemical changes due to food spoilage.
- Spoilage of different foods. (Meat, poultry and its products, fish, fruits and vegetable, milk and milk products).

Unit- III: Food Hazards of microbial origin.

- Food borne diseases and its types (food intoxications, food infections and food borne toxic infections).
- Food borne intoxications (staphylococcal poisoning, Bacillus cereus poisoning, botulism).
- Food borne infections (salmonellosis, shigellosis, Hepatitis A).
- Food borne toxic infections (Clostridium perfringens gastroenteritis, Cholera).
- Mycotoxins- (Aflatoxicosis, ergotism).
- Food borne diseases due to naturally occurring toxicants (Lathyrism, Epidemic dropsy).

Unit - IV: Hygiene and sanitation in Food service establishments.

- Sanitation in food service establishment (cleaning agents, disinfectants or sanitizers, waste disposal).
- Health status of food handlers and personal hygiene.

Practicals:

1. Morphological study of various prepared slides.
   - Bacteria (Bacillus, coccus, vibrio, spirilla)
   - Yeast (Reproductive and vegetative)
   - Moulds (Reproductive and vegetative).
2. Sterilization of various equipments/ glassware used for microbiological work.
3. Preparation of bacterial smear.
4. Gram staining of bacteria.

References:

1) Food Microbiological by W. C. Frazier: Tata Mc Graw Hill
2) Modern Food Microbiology by James M. ray; CBS
3) Bacteriology by Salle
4) Standard Methods for Waste Water Analysis by APHA
5) Basic Food Microbiology: Bannett Chapmen and Hall
6) Essentials of Microbiology by K.S. Bilgrami; CBS
7) Basic Good Microbiology; Bannett Chapmen and Hall
8) Essentials of Microbiology by K.S. Bilgrami; CBS