**Courses of Distinct program in food safety and quality**

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| **Title**: Food establishments management systems  | **Credit hours** |
| **Code Number: NDC 227** | **Lectures**  | **Practical** |
| **Prerequisite courses:** | 2 | 1(1) |
| Quality Control System,Quality characteristics in food,Total Quality Management in Food Processing,Quality systems and ISO 9000 and HACCP specifications,Quality systems and ISO 9000 and HACCP specifications1 Production Policy (Product Cycle - Steps to Production of a New Product - Product Development)Management and training of workers in food establishments |

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| **Title:** Hygiene of food establishments | **Credit hours** |
| **Code Number: FHC 327** | **Lectures**  | **Practical** |
| **Prerequisite courses:** | 2 | 1(1) |
| **Course Contents:*** Sources of food contamination and spoilage.
* Diseases transmitted through food.
* Chemical, physical and microbiological hazards and their control.
* Facility Design.
* Cleaning and Sanitation.
* Personal Hygiene.
* Pest Control.
* Receiving, Storage and Transportation.
* Hygienic production of food sources.
* Good manufacturing practices (GMPs).
* Good operational practices (GOPs).
* Supplier control.
* Audits and inspection programs.
* Food safety management systems (FSMS).
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| **Title: Food Safety and Quality Management systems** | **Credit hours** |
| **Code Number: FHC 428** | **Lectures**  | **Practical** |
| **Prerequisite courses:** | 2 | 1(1) |
| **Course Contents:*** + Food safety issues; physical, chemical and microbiological contaminants, bovinespongiform encephalopathy (BSE), genetically modified organisms and geneticallymodified foods.
	+ Food safety system.
	+ Definitions and terminology in Quality Management Systems.
	+ History of quality control and quality management.
	+ Quality management theories and their authors.

**Physical and Chemical Contaminants and Additives*** + Metals, mineral (soil, engine oil, stones), plant (leaves, twigs, pods and skins), animal(hair, bone, excreta, blood, insects, larvae).
	+ Safety evaluation of food ingredients.
	+ Major pathways by which chemical residues and contaminants enter the food chain.
	+ Agrochemicals and veterinary drugs, packaging materials, process equipment andingredient impurities.
	+ The nature, properties and function of various classes of food additives (colorants, flavors, sweeteners, thickening and gelling agents, and antioxidant preservatives).
	+ Radioactivity – residues as contaminants and residues from irradiation

**Natural Toxic Substances*** + Mycotoxins
	+ Marine and Freshwater toxins (formally known as Phycotoxins)
	+ Plant toxins and toxic plants
	+ Toxic Mushrooms

**Microbiology Food Safety*** + The significance of foodborne disease.
	+ Recent emerging pathogens including: Bacteria – *Escherichia coli* 0157:H7, *Listeriamonocytogenes, Salmonella typhimurium* (DT) 104.
	+ Non-bacterial agents – Protozoa; *Cryptosporidium parvum.*  Toxigenic fungi; mycotoxinsof *Aspergillus*. Foodborne viruses; gastroenteritis viruses.
	+ Spongiform encephalopathies; bovine spongiform encephalopathy (BSE).
	+ Factors affecting the emergence of pathogens.
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| **Title: Milk preservation** | **Credit hours** |
| **Code Number: FHC 429** | **Lectures**  | **Practical** |
| **Prerequisite courses: FHC 416** | 2 | 1(1) |
| **Course Contents:****Normal preservation of milk****Natural biopreservation of milk****Legal milk additives**  |

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| **Title: Animal by products & recycling** | **Credit hours** |
| **Code Number: FHC 518** | **Lectures**  | **Practical** |
| **Prerequisite courses:**516 | 2 | 1(3) |
| **Course Contents:**Main characteristics of edible by products, Recovery and preparation of edible by products,Microbiology of edible by products, Utilization of edible by products |

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| Title: Poultry & fish meat hygiene& control | **Credit hours** |
| Code Number: FHC 528 | **Lectures**  | **Practical** |
| Prerequisite courses:516 | 2 | 1(3) |
| **Course Contents:**Ante- motem inspection of poultry, P.M. inspection of poultry, Processing faults of dressed broilers, pathological affections, rabbit slaughter & judgment of diseases, Fish morphology & identifications, Hazards of fish consumption,. Fish preservation, HACCP, ISO .Meat microbiology. |

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| Title: meat preservation  | Credit hours |
| Code Number: FHC 529 | Lectures  | Practical |
| Prerequisite courses:516 | 2 | 1(3) |
| Course Contents:Microbial growth curve, chilling, freezing, canning, curing, irradiation. |