St.James College of Pharmaceutical Sciences St.James medical Academy River Bank, Chalakudy			
Programme:	M.Pharm	Sem.:	1
Name of Course: (*Subject*)	Food analysis	Course Code:	MPA 104T
Teaching faculty of the course			

Summary of the Lecture Plan

Topic	Lectures	Hours
CARBOHYDRATES AND PROTEINS	CARBOHYDRATES: Classification and properties of carbohydrates	1
	General methods of analysis of food carbohydrates, Changes in food carbohydrates during processing, Digestion, absorption and metabolism	2
	Dietary fiber, Crude fiber and application of food carbohydrates	2
	PROTEINS: Classification of amino acids and proteins physiochemical properties of protein and their structure, General methods of analysis of proteins and amino acids. Digestion, absorption and metabolism of proteins.	3
LIPIDS AND VITAMINS	LIPIDS: Classification, general methods of analysis of fats and oils	1
	Refining of fats and oils; hydrogenation of vegetable oils.	1
	Determination of adulteration in fats and oils.	1
	Methods used for measurement of spoilage of fats and fatty foods.	1
	VITAMINS: classification of vitamins, methods of analysis of vitamins, Principles of microbial assay of vitamins of B-series	2
FOOD ADDITIVES	Introduction, analysis of preservatives, antioxidants, artificial sweeteners, flavors, flavor enhancers, stabilizers, thickening and jelling agents	1
	DYES: Pigments and synthetic dyes: Natural pigments, their occurrence and characteristic properties.	1
	Permitted synthetic dyes, Non-permitted synthetic dyes used by industries	1
	Method of detection of natural, permitted and non-permitted dyes	1
GENERAL	Ice cream, milk powder, butter, margarine, cheese	3

ANALYTICAL METHODS FOR MILK, MILK CONSTITUENTS AND MILK PRODUCTS	including adulterants and contaminants of milk. Analysis of fermentation products like wine, spirits, beer and vinegar.	4
PESTICIDE ANALYSIS	Effects of pest and insects on various food, use of pesticides in agriculture, pesticide cycle	1
	Organophosphorus and organochlorine pesticides analysis	1
	Determination of pesticide residues in grain, fruits, vegetables, milk and milk products.	1
	Legislation regulations of food products with special emphasis on BIS, Agmark, FDA and US-FDA.	1

Major issues or Core aspects to be addressed/ covered:

CARBOHYDRATES AND PROTEINS
Function classification and properties of carbohydrates
Methods of analysis of carbohydrates, changes in food carbohydrates during processing
Digestion, absorption and metabolism of carbohydrate. Dietary fibers and applications of carbohydrates.
Structure classification and chemistry of proteins & amino acids.
Digestion absorption and metabolism of proteins
Analysis of proteins
LIPIDS AND VITAMINS
Classification, quantitative &qualitative analysis of lipids. Refining of fats & oils, vegetable oil hydrogenation.
Measurement of spoilage of fats & oils
Classification, methods of analysis of vitamins.
Microbiological assay of vitamin B series
Food additives
Principle & methods of analysis of preservatives, antioxidants, artificial sweeteners, flavors, flavor enhancers, stabilizers, thickening and jelling agents
Natural pigments their characteristics &occurence
Permitted synthetic dyes, Non-permitted synthetic dyes used by industries
Method of detection of natural, permitted and non- permitted dyes
General methods of analysis of milk & milk products
Ice cream, milk powder, butter, margarine, cheese including adulterants and contaminants of milk.
Methods of analysis of fermentation products: wine, spirits, beer and vinegar.

PESTICIDE ANALYSIS
Effects of pest and insects on various food, use of pesticides in agriculture, pesticide cycle
Organophosphorus and organochlorine pesticides analysis
Determination of pesticide residues in grain, fruits, vegetables, milk and milk products.
Legislation regulations of food products with special emphasis on BIS, Agmark, FDA and US-FDA

Sample Questions

CARBOHYDRATES & PROTEINS
Explain digestion &absorption of carbohydrates
Explain the changes that occur in food carbohydrates during processing.
What are the general methods of analysis of carbohydrates?
Short notes on dietary and crude fiber
Classify proteins and discuss the principle and procedure involved in the estimation of protein by micro Kjeldahl method of analysis.
Explain metabolism of proteins
LIPIDS & VITAMINS
Discuss on adulteration determination in fats and oils
Refining of fats and oils
Give notes on Sap value and iodine value.
Short notes on vitamin analysis
FOOD ADDITIVES
Short notes on stabilizers and thickening agents in food industry
Give descriptive notes on permitted synthetic dyes for food
Discuss on preservatives used in food
Explain the different types and characters of food colorants. Explain the method of detection of natural, permitted and non-permitted dyes in food.
Give detailed note on artificial sweetener.
GENERAL METHODS OF ANALYSIS OF MILK & MILK PRODUCTS
Explain analysis of butter components
Give notes on adulterants and contaminants in milk
Give an account of general analytical methods for milk. Describe the constituents, adulterants and contaminants of milk
How can we perform analysis of beer?

PESTICIDE ANALYSIS
Explain pesticides used in agricultural industry and its impact in food industry
Explain AGMARK.
Analysis of organophosphorus pesticide.